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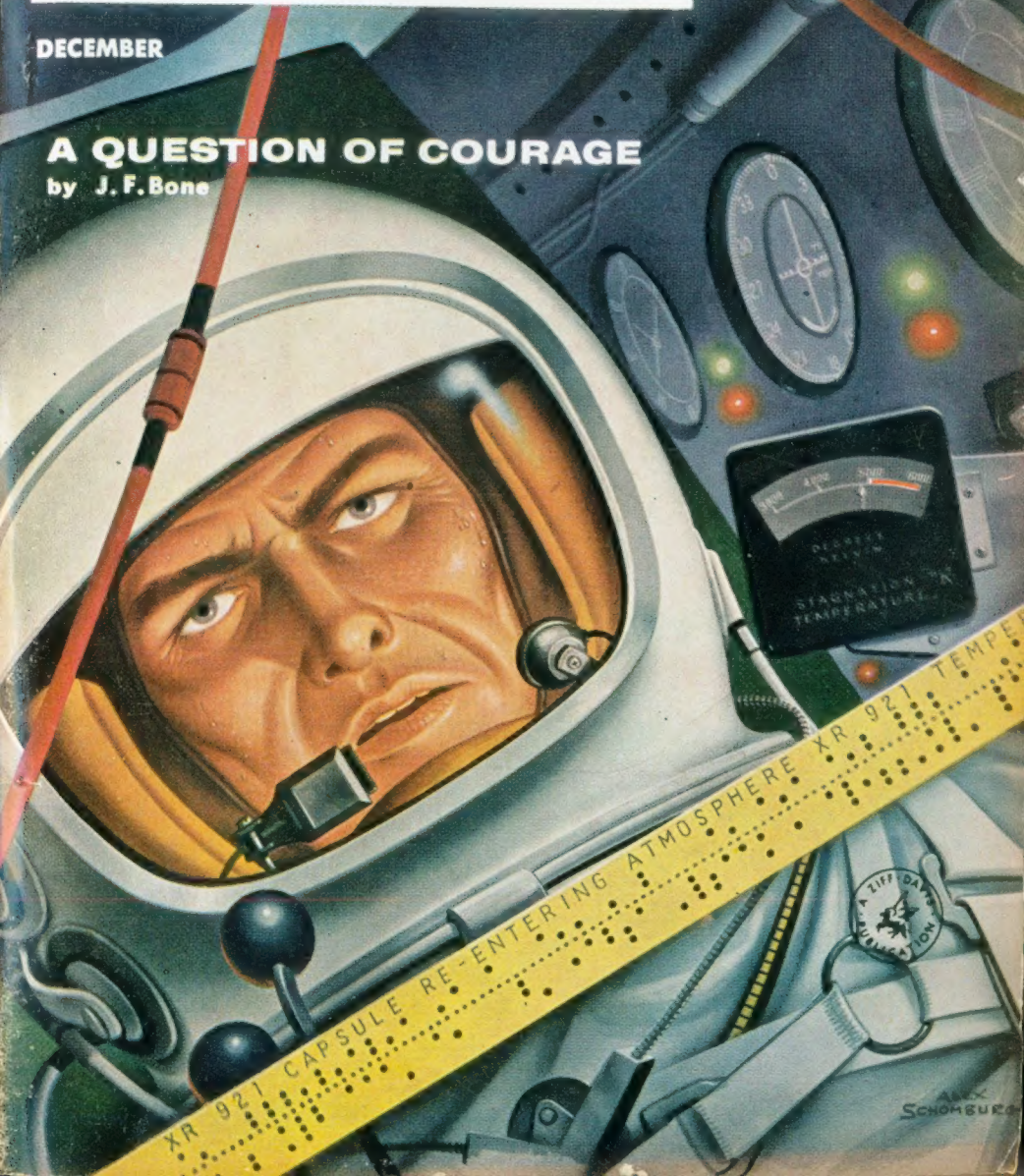
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## A QUESTION OF COURAGE

by J. F. Bone



ALEX SCHOMBURG

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Fact and Science Fiction Stories

DECEMBER, 1960 Vol. 34, No. 12

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## EDITORIAL

**A**MONG the flood of banal and ridiculous junk that passes these days for science fiction movies, one recent release—perhaps still at your neighborhood dream-palace—is deserving of serious attention. That was the George Pal-M.G.M. production of *The Time Machine*, that ancient wheeze by H. G. Wells.

As you all no doubt recall, this is about a man who invents a t.m. and winds up in the year 802,701. The world is then populated by a passive race of handsome young men and women called Eloi, and by the Morlocks, mutant monsters who can think of nothing better than a dish of *Eloi de foie gras*, or perhaps a *filet of Eloi*, or even a flaming dessert of *Eloi jubilee*. Our hero falls for one of the blonde Eloi (female), returns to his own time to tell his tale, and then whips back off to 802, etc., to be with his cuddle-bunny.

The point of going through all this is that at the end of the story, and of the film, our hero is

seen taking three books into the future with him with which to educate the Eloi. The riddle which Wells left was: what were the books? The cagey H. G., not willing to go out on a literary limb himself, never mentioned their titles.

So the stage is now set for the latest party game: What do you think were the three books The Time Traveler took into the future, and why?

I have taken my own private poll on this burning question, and the results are not at all what one had hoped for. Consensus has it that the three books which made the trip in time were Van de Velde's *Ideal Marriage*, the *Better Homes and Gardens Book of Barbecue Cookery*, and *The Pokey Little Puppy*—which should really take care of the basic necessities.

However, such a choice does not seem what Wells had in mind. Of course, the selection of the three books is something like taking a Rohrschach test—it

provides the other fellow with a marvellous tool for psychoanalyzing *you*. But the responsibilities of editing a magazine sometimes call for that kind of courage. There are times when a man must step forward and be counted. And so here are the three books I think Wells's hero (who, you must remember, lived in 1895), packed in his duffle bag:

1.—*The Prince*, by Machiavelli. Reason: *Somebody* is going to have to take over that world of 802, etc., and run it properly, and it might as well be number one. No book gives directions for taking and keeping political power as well as this one.

2.—*Robinson Crusoe*, by Daniel Defoe. Reason: a man all the way up ahead then may be able to pick up some pointers on how to live virtually alone and like it.

3.—*Lest We Forget*, by Rudyard Kipling. Reason: to keep his upper lip stiff.

You will note I give the hero no credit for selflessness. Au contraire. The books he took are, I am convinced, for *his* good, not the Elois.

By now *you* must have *your* favorite choices. It would be interesting to know what—and why—they are.

\* \* \*

On the serious side of things, may I call to your attention the first "classic reprint" that appears in this issue. One of the

things that makes it hard to get the current magazine out on time is the fact that our desk abuts a bookcase filled with a bound collection of old AMAZINGS that go right back to Vol. 1, No. 1. Start thumbing through them and you are hooked for the rest of the afternoon. They wrote *stories* in those days.

After a while it seemed selfish to keep all these goodies to ourselves. Old readers and new, both, we thought, would welcome and enjoy them. And so we inaugurate a new series of reprints—stories that are exciting, filled with the old-time sense of wonder, and which represent a particular trend or high-water-mark in either science-fiction as a whole, or in the career of the individual writer.

Each story has been chosen with the invaluable aid of sf historian Sam Moskowitz, who will also write a brief introduction to each one, putting it in its historical perspective and explaining why it has been selected for reprinting. The series starts in this issue (P. 91) with John Wyndham's "The Lost Machine," which first appeared in April, 1932, when hardly a man was now alive.

\* \* \*

And, finally, a return to humor. You can recall our announcement—  
(Continued on page 29)



***I smelled the trouble the moment I stepped on the lift and took the long ride up the side of the Lachesis. There was something wrong. I couldn't put my finger on it but***

five years in the Navy gives a man a feeling for these things. From the outside the ship was beautiful, a gleaming shaft of duralloy, polished until she shone. Her paint and brightwork glistened. The antiradiation shields on the gun turrets and launchers were folded back exactly according to regulations. The shore uniform of the liftman was spotless and he stood at his station precisely as he should. As the lift moved slowly up past no-man's country to the life section, I noted a work party hanging precariously from a scaffolding smoothing out meteorite pits in the gleaming hull, while on the catwalk of the gantry standing beside the main cargo hatch a steady stream of supplies disappeared into the ship's belly.

I returned the crisp salutes of the white-gloved sideboys, saluted the colors, and shook hands with an immaculate ensign with an OD badge on his tunic.

"Glad to have you aboard, sir," the ensign said.

"I'm Marsden," I said. "Lieutenant Thomas Marsden. I have orders posting me to this ship as executive."

"Yes, sir. We have been expecting you. I'm Ensign Halloran."

"Glad to meet you, Halloran."

"Skipper's orders, sir. You are to report to him as soon as you come aboard."

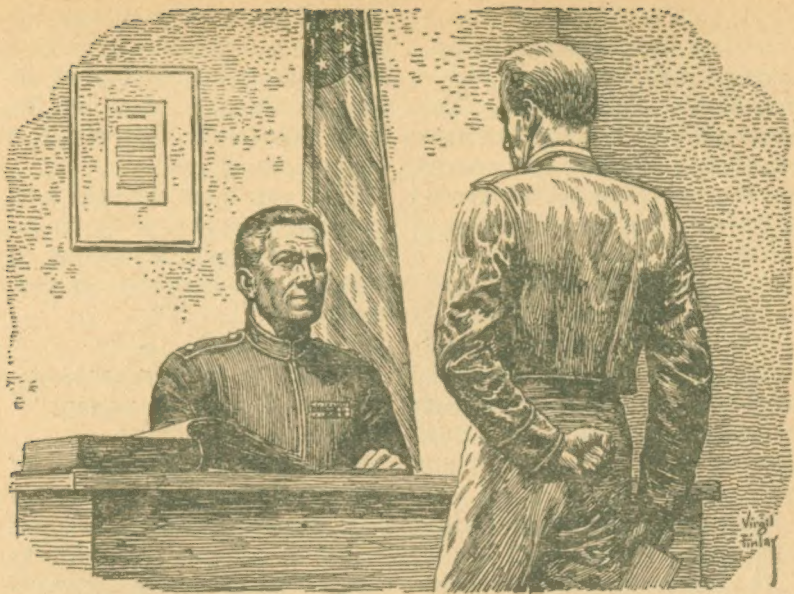
Then I got it. Everything was SOP. The ship wasn't taut, she was tight! And she wasn't happy. There was none of the devil-maycare spirit that marks crews

# **A Question Of Courage**

**By J. F. BONE**

**Illustrated by FINLAY**





in the Scouting Force and separates them from the stodgy mass of the Line. Every face I saw on my trip to the skipper's cabin was blank, hard-eyed, and unsmiling. There was none of the human noise that normally echoes through a ship, no laughter, no clatter of equipment, no deviations from the order and precision so dear to admirals' hearts. This crew was G.I. right down to the last seam tab on their uniforms. Whoever the skipper was, he was either bucking for another cluster or a cold-feeling automaton to whom the Navy Code was father, mother, and Bible.

The O.D. stopped before the closed door, executed a mechani-

cal right face, knocked the prescribed three times and opened the door smartly on the heels of the word "Come" that erupted from the inside. I stepped in followed by the O.D.

"Commander Chase," the O.D. said. "Lieutenant Marsden."

Chase! Not Cautious Charley Chase! I could hardly look at the man behind the command desk. But look I did—and my heart did a ninety degree dive straight to the thick soles of my space boots. No wonder this ship was sour. What else could happen with Lieutenant Commander Charles Augustus Chase in command! He was three classes up on me, but even though he was a First Classman at the time I

crawled out of Beast Barracks, I knew him well. Every Midshipman in the Academy knew him—Rule-Book Charley—By-The-Numbers Chase—his nicknames were legion and not one of them was friendly. "Lieutenant Thomas Marsden reporting for duty," I said.

He looked at the O.D. "That'll be all, Mr. Halloran," he said.

"Aye, sir," Halloran said woodenly. He stepped backward, saluted, executed a precise about face and closed the hatch softly behind him.

"Sit down, Marsden," Chase said. "Have a cigarette."

He didn't say, "Glad to have you aboard." But other than that he was Navy right down to the last parenthesis. His voice was the same dry schoolmaster's voice I remembered from the Academy. And his face was the same dry gray with the same fishy blue eyes and rat trap jaw. His hair was thinner, but other than that he hadn't changed. Neither the war nor the responsibilities of command appeared to have left their mark upon him. He was still the same lean, undersized square-shouldered blob of nastiness.

I took the cigarette, sat down, puffed it into a glow, and looked around the drab 6 x 8 foot cubicle called the Captain's cabin by ship designers who must have

laughed as they laid out the plans. It had about the room of a good-sized coffin. A copy of the Navy Code was lying on the desk. Chase had obviously been reading his bible.

"You are three minutes late, Marsden," Chase said. "Your orders direct you to report at 0900. Do you have any explanation?"

"No, sir," I said.

"Don't let it happen again. On this ship we are prompt."

"Aye, sir," I muttered.

He smiled, a thin quirk of thin lips. "Now let me outline your duties, Marsden. You are posted to my ship as Executive Officer. An Executive Officer is the Captain's right hand."

"So I have heard," I said drily.

"Belay that, Mr. Marsden. I do not appreciate humor during duty hours."

You wouldn't, I thought.

"As I was saying, Marsden, Executive Officer, you will be responsible for—" He went on and on, covering the Code-chapter, book and verse on the duties of an Executive Officer. It made no difference that I had been Exec under Andy Royce, the skipper of the "Clotho", the ship with the biggest confirmed kill in the entire Fleet Scouting Force. I was still a new Exec, and the book said I must be briefed on my duties. So "briefed" I was—for a solid hour.



Feeling angry and tired, I finally managed to get away from Rule Book Charley and find my quarters which I shared with the Engineer. I knew him casually, a glum reservist named Allyn. I had wondered why he always seemed to have a chip on his shoulder. Now I knew.

He was lying in his shock-couch as I came in. "Welcome, sucker," he greeted me. "Glad to have you aboard."

"The feeling's not mutual," I snapped.

"What's the matter? Has the Lieutenant Commander been rolling you out on the red carpet?"

"You could call it that," I said. "I've just been told the duties of an Exec. Funny—no?"

He shook his head. "Not funny. I feel for you. He told me how to be an engineer six months ago." Allyn's thin face looked glummer than usual.

"Did I ever tell you about our skip—captain?" Allyn went on. "Or do I have to tell you? I see you're wearing an Academy ring."

"You can't tell me much I haven't already heard," I said coldly. I don't like wardroom gossip as a matter of policy. A few disgruntled men on a ship can shoot morale to hell, and on a ship this size the exec is the morale officer. But I was torn between two desires. I wanted Al-

lyn to go on, but I didn't want to hear what Allyn had to say. I was like the proverbial hungry mule standing halfway between two haystacks of equal size and attractiveness. And like the mule I would stand there turning my head one way and the other until I starved to death.

But Allyn solved my problem for me. "You haven't heard *this*," he said bitterly. "The whole crew applied for transfer when we came back to base after our last cruise. Of course, they didn't get it, but you get the idea. Us reservists and draftees get about the same consideration as the Admiral's dog—No! dammit!—Less than the dog. They wouldn't let a mangy cur ship out with Gutless Gus."

Gutless Gus! that was a new one. I wondered how Chase had managed to acquire that sobriquet.

"It was on our last patrol," Allyn went on, answering my question before I asked it. "We were out at maximum radius when the detectors showed a disturbance in normal space. Chase ordered us down from Cth for a quick look—and so help me, God, we broke out right in the middle of a Rebel supply convoy—big, fat, sitting ducks all around us. We got off about twenty Mark VII torpedoes before Chase passed the word to

change over. We scooted back into Cth so fast we hardly knew we were gone. And then he raises hell with Detector section for not identifying every class of ship in that convoy!

"And when Bancroft, that's the exec whom you've relieved, asked for a quick check to confirm our kills, Chase sat on him like a ton of brick. 'I'm not interested in how many poor devils we blew apart back there,' our Captain says. 'Our mission is to scout, to obtain information about enemy movements and get that information back to Base. We cannot transmit information from a vaporized ship, and that convoy had a naval escort. Our mission cannot be jeopardized merely to satisfy morbid curiosity. Request denied. And, Mr. Bancroft, have Communications contact Fleet. This information should be in as soon as possible.' And then he turned away leaving Bancroft biting his fingernails. He wouldn't even push out a probe—scooted right back into the blue where we'd be safe!

"You know, we haven't had one confirmed kill posted on the list since we've been in space. It's getting so we don't want to come in any more. Like the time—the "Atropos" came in just after we touched down. She was battered—looked like she'd been through a meatgrinder, but she had ten confirmed and six prob-

able, and four of them were escorts! Hell! Our boys couldn't hold their heads up. The "Lachesis" didn't have a mark on her and all we had was a few possible hits. You know how it goes—someone asks where you're from. You say the "Lachesis" and they say 'Oh, yes, the cruise ship.' And that's that. It's so true you don't even feel like resenting it."

I didn't like the bitter note in Allyn's voice. He was a reservist, which made it all the worse. Reservists have ten times the outside contacts we regulars do. In general when a regular and reservist tangle, the Academy men close ranks like musk-oxen and meet the challenge with an unbroken ring of horns. But somehow I didn't feel like ringing up.

I kept hoping there was another side to the story. I'd check around and find out as soon as I got settled. And if there was another side, I was going to take Allyn apart as a malicious trouble-maker. I felt sick to my stomach.

We spent the next three days taking on stores and munitions, and I was too busy supervising the stowage and checking manifests to bother about running down Allyn's story. I met the other officers—Lt. Pollard the gunnery officer, Ensign Esterhazy the astrogator, and Ensign



Blakiston. Nice enough guys, but all wearing that cowed, frustrated look that seemed to be a "Lachesis" trademark. Chase, meanwhile, was up in Flag Officer's Country picking up the dope on our next mission. I hoped that Allyn was wrong but the evidence all seemed to be in his favor. Even more than the officers, the crew was a mess underneath their clean uniforms. From Communications Chief CPO Haskins to Spaceman Zelinski there was about as much spirit in them as you'd find in a punishment detail polishing brightwork in Base Headquarters. I'm a cheerful soul, and usually I find no trouble getting along with a new command, but this one was different. They were efficient enough, but one could see that their hearts weren't in their work. Most crews preparing to go out are nervous and high tempered. There was none of that here. The men went through the motions with a mechanical indifference that was frightening. I had the feeling that they didn't give a damn whether they went or not—or came back or not. The indifference was so thick you could cut it with a knife. Yet there was nothing you could put your hand on. You can't touch people who don't care.

Four hours after Chase came back, we lifted gravs from Earth.

Chase was sitting in the control chair, and to give him credit, we lifted as smooth as a silk scarf slipping through the fingers of a pretty woman. We hypered at eight miles and swept up through the monochromes of Cth until we hit middle blue, when Chase slipped off the helmet, unfastened his webbing, and stood up.

"Take over, Mr. Marsden," he said. "Lay a course for Parth."

"Aye, sir," I replied, slipping into the chair and fastening the web. I slipped the helmet on my head and instantly I was a part of the ship. It's a strange feeling, this synthesis of man and metal that makes a fighting ship the metallic extension of the Commander's will. I was conscious of every man on duty. What they saw I saw, what they heard I heard, through the magic of modern electronics. The only thing missing was that I couldn't feel what they felt, which perhaps was a mercy considering the condition of the crew. Using the censor circuits in the command helmet, I let my perception roam through the ship, checking the engines, the gun crews, the navigation board, the galley—all the manifold stations of a fighting ship. Everything was secure, the ship was clean and trimmed, the generators were producing their megawatts of power without a hitch, and the converters were

humming contentedly, keeping us in the blue as our speed built to fantastic levels.

I checked the course, noted it was true, set the controls on standby and relaxed, half dozing in the chair as Lume after Lume dropped astern with monotonous regularity.

An hour passed and Halloran came up to relieve me. With a sigh of relief I surrendered the chair and headset. The unconscious strain of being in rapport with ship and crew didn't hit me until I was out of the chair. But when it did, I felt like something was crushing me flat. Not that I didn't expect it, but the "Lachesis" was worse than the "Clotho" had ever been.

I had barely hit my couch when General Quarters sounded. I smothered a curse as I pounded up the companionway to my station at the bridge. Chase was there, stopwatch in hand, counting the seconds.

"Set!" Halloran barked.

"Fourteen seconds," Chase said. "Not bad. Tell the crew well done." He put the watch in his pocket and walked away.

I picked up the annunciator mike and pushed the button. "Skipper says well done," I said.

"He got ten seconds out of us once last trip," Halloran said. "And he's been trying to repeat that fluke ever since. Bet you a

munit to an "F" ration that he'll be down with the section chief trying to shave off another second or two. Hey!—what's that—oh . . ." He looked at me. "Disturbance in Cth yellow, straight down—shall we go?"

"Stop ship," I ordered. "Sound general quarters." There was no deceleration. We merely swapped ends as the alarm sounded, applied full power and stopped. That was the advantage of Cth—no inertia. We backtracked for three seconds and held in middle blue.

"What's going on?" Chase demanded as he came up from below. His eyes raked the instruments. "Why are we stopped?"

"Disturbance in Cth yellow, sir," I said. "We're positioned above it."

"Very good, Mr. Marsden." He took the spare helmet from the Exec's chair, clapped it on, fiddled with the controls for a moment, nodded, and took the helmet off. "Secure and resume course," he said. "That's the 'Amphitrite'—fleet supply and maintenance. One of our people."

"You sure, sir?" I asked, and then looked at the smug grin on Halloran's face and wished I hadn't asked.

"Of course," Chase said. "She's a three converter job run-



ning at full output. Since the Rebels have no three converter ships, she has to be one of ours. And since she's running at full output and only in Cth yellow, it means she's big, heavy, and awkward—which means a maintenance or an ammunition supply ship. There's an off phase beat in her number two converter that gives a twenty cycle pulse to her pattern. And the only heavy ship in the fleet with this pattern is 'Amphitrite'. You see?"

I saw—with respect. "You know all the heavies like that, sir?" I asked.

"Not all of them—but I'd like to. It's as much a part of a scoutship commander's work to know our own ships as those of the enemy."

"Could that trace be a Rebel ruse?"

"Not likely—travelling in the yellow. A ship would be cold meat this far inside our perimeter. And besides, there's no Rebel alive who can tune a converter like a Navy mechanic."

"You sure?" I persisted.

"I'm sure. But take her down if you wish."

I did. And it was the "Amphitrite".

"I served on her for six months," Chase said drily as we went back through the components. I understood his certainty now. A man has a feeling for ships if he's a good officer. But

it was a trait I'd never expected in Chase. I gave the orders and we resumed our band and speed. Chase looked at me.

"You acted correctly, Mr. Marsden," he said. "Something I would hardly expect, but something I was glad to see."

"I served under Andy Royce," I reminded him.

"I know," Chase replied. "That's why I'm surprised." He turned away before I could think of an answer that would combine insolence and respect for his rank. "Keep her on course, Mr. Halloran," he tossed over his shoulder as he went out.

We kept on course—high and hard despite a couple of disturbances that lumbered by underneath us. Once I made a motion to stop ship and check, but Halloran shook his head.

"Don't do it, sir," he warned.

"Why not?"

"You heard the Captain's orders. He's a heller for having them obeyed. Besides, they might be Rebs—and we might get hurt shooting at them. We'll just report their position and approximate course—and keep on travelling. Haskins is on the Dirac right now." Halloran's voice was sarcastic.

I didn't like the sound of it, and said so.

"Well, sir—we won't lose them entirely," Halloran said comfortingly. "Some cruiser will in-

investigate them. Chances are they're ours anyway—and if they aren't there's no sense in us risking our nice shiny skin stopping them—even though we could take them like Lundy took Koromaja. Since the book doesn't say we have to investigate, we won't." His voice was bitter again.

At 0840 hours on the fourth day out, my annunciator buzzed. "Sir," the talker's voice came over the intercom, "Lieutenants Marsden and Allyn are wanted in the Captain's quarters."

Chase was there—toying with the seals of a thin, brown envelope. "I have to open this in the presence of at least two officers," he said nodding at Allyn who came in behind me. "You two are senior on the ship and have the first right to know." He slid a finger through the flap.

"Effective 12, Eighthmonth, GY2964," he read, "USN 'Lachesis' will proceed on offensive mission against enemy vessels as part of advance covering screen Fleet Four for major effort against enemy via sectors YD 274, YD 275, and YD 276. Entire scouting Force IV quadrant will be grouped as Fleet Four Screen Unit under command Rear Admiral SIMMS. Initial station 'Lachesis' coordinates X 06042 Y 1327 Betelgeuse-Rigel baseline. ETA Rendezvous point

0830 plus or minus 30, 13/8/64.

A. Evars, Fleet Admiral USN Commanding"

There it was! I could see Allyn stiffen as a peculiar sick look crossed Chase's dry face. And suddenly I heard all the ugly little nicknames—Subspace Chase, Gutless Gus, Cautious Charley—and the dozen others. For Chase was afraid. It was so obvious that not even the gray mask of his face could cover it.

Yet his voice when he spoke was the same dry, pedantic voice of old. "You have the rendezvous point, Mr. Marsden. Have Mr. Esterhazy set the course and speed to arrive on time." He dismissed us with the traditional "That's all, gentlemen," and we went out separate ways. I didn't want to look at the triumphant smile on Allyn's face.

We hit rendezvous at 0850, picked up a message from the Admiral at 0853, and at 0855 were on our way. We were part of a broad hemispherical screen surrounding the Cruiser Force which englobed the Line and supply train—the heavies that are the backbone of any fleet. We were headed roughly in the direction of the Rebel's fourth sector, the one topheavy with metals industries. Our exact course was known only to the brass and the computers that planned our interlock. But where we were headed wasn't impor-

tant. The "Lachesis" was finally going to war! I could feel the change in the crew, the nervousness, the anticipation, the adrenal responses of fear and excitement. After a year in the doldrums, Fleet was going to try to smash the Rebels again. We hadn't done so well last time, getting ambushed in the Fifty Suns group and damn near losing our shirts before we managed to get out. The Rebs weren't as good as we were, but they were trickier, and they could fight. After all, why shouldn't they be able to. They were human, just as we were, and any one of a dozen extinct intelligent races could testify to our fighting ability, as could others not-quite-extinct. Man ruled this section of the galaxy, and someday if he didn't kill himself off in the process he'd rule all of it. He wasn't the smartest race but he was the hungriest, the fiercest, the most adaptable, and the most unrelenting. Qualities which, by the way, were exactly the ones needed to conquer a hostile universe.

But mankind was slow to learn the greatest lesson, that they *had* to cooperate if they were to go further. We were already living on borrowed time. Before the War, ten of eleven exploration ships sent into the galactic center had disappeared without a trace. Somewhere, bur-

ied deep in the billions of stars that formed the galactic hub, was a race that was as tough and tricky as we were—maybe even tougher. This was common knowledge, for the eleventh ship had returned with the news of the aliens, a story of hairbreadth escape from destruction, and a pattern of their culture which was enough like ours to frighten any thinking man. The worlds near the center of humanity's sphere realized the situation at once and quickly traded their independence for a Federal Union to pool their strength against the threat that might come any day.

But as the Union Space Navy began to take shape on the dockyards of Earth and a hundred other worlds, the independent worlds of the periphery began to eye the Union with suspicion. They had never believed the exploration report and didn't want to unite with the worlds of the center. They thought that the Union was a trick to deprive them of their fiercely cherished independence, and when the Union sent embassies to invite them into the common effort, they rejected them. And when we suggested that in the interests of racial safety they abandon their haphazard colonization efforts that resulted in an uncontrolled series of jumps into the dark, punctuated by minor



wars and clashes when colonists from separate origins landed, more or less simultaneously, on a promising planet, they were certain we were up to no good.

Although we explained and showed them copies of the exploration ship's report, they were not convinced. Demagogues among them screamed about manifest destiny, independence, interference in internal affairs, and a thousand other things that made the diplomatic climate between Center and Periphery unbearably hot. And their colonists kept moving outward.

Of course the Union was not about to cooperate in this potential race suicide. We simply couldn't allow them to give that other race knowledge of our whereabouts until we were ready for them. So we informed each of the outer worlds that we would consider any further efforts at colonizing an unfriendly act, and would take steps to discourage it.

That did it.

We halted a few colonizing ships and sent them home under guard. We uprooted a few advance groups and returned them to their homeworlds. We established a series of observation posts to check further expansion—and six months later we were at war.

The outer worlds formed what they called a defensive league and with characteristic human rationality promptly attacked us. Naturally, they didn't get far. We had a bigger and better fleet and we were organized while they were not. And so they were utterly defeated at the Battle of Ophiuchus.

It was then that we had two choices. We could either move in and take over their defenseless worlds, or we could let them rebuild and get strong, and with their strength acquire a knowledge of cooperation—and take the chance that they would ultimately beat us. Knowing this, we wisely chose the second course and set about teaching our fellow men a lesson that was now fifteen years along and not ended yet.

By applying pressure at the right places we turned their attention inward to us rather than to the outside, and by making carefully timed sorties here and there about the periphery we forced them through sheer military necessity to gradually tighten their loosely organized League into tightly centralized authority, with the power to demand and obtain—to meet our force with counterforce. By desperate measures and straining of all their youthful resources they managed to hold us off. And with every strain they were

welded more tightly together. And slowly they were learning through war what we could not teach through peace.

Curiously enough, they wouldn't believe our aims even when captured crews told them. They thought it was some sort of tricky mental conditioning designed to frustrate their lie detectors. Even while they tightened their organization and built new fleets, they would not believe that we were forcing them into the paths they must travel to avoid future annihilation.

It was one of the ironies of this war that it was fought and would be fought with the best of intentions. For it was obvious now that we could never win—nor could they. The Rebels, as we called them, were every whit as strong as we, and while we enjoyed the advantages of superior position and technology they had the advantage of superior numbers. It was stalemate,—the longest, fiercest stalemate in man's bloody history. But it was stalemate with a purpose. It was a crazy war—a period of constant hostilities mingled with sporadic offensive actions like the one we were now engaged in—but to us, at least, it was war with a purpose—the best and noblest of human purposes—the preservation of the race.

The day was coming, not too many years away, when the first

of the aliens would strike the Outer worlds. Then we would unite—on the League's terms if need be—to crush the invaders and establish mankind as the supreme race in the galaxy.

But this wasn't important right now. Right now I was the executive officer of a scout ship commanded by a man I didn't trust. He smelled too much like a stinking coward. I shook my head. Having Chase running the ship was like putting a moron in a jet car on one of the super-highways—and then sabotaging the automatics. Just one fearful mistake and a whole squadron could be loused up. But Chase was the commander—the ultimate authority on this ship. All I could do was pray that things were going to come out all right.

We moved out in the lower red. Battles weren't fought in Cth. There was no way to locate a unit at firing range in that monochromatic madness. Normal physical laws simply didn't apply. A ship had to come out into threespace to do any damage. All Cth was was a convenient road to the battlefront.

With one exception.

By hanging in the infra band, on the ragged edge of threespace, a scout ship could remain concealed until a critical moment, breakout into threespace—discharge her weapons—and flick back into Cth before an

enemy could get a fix on her. Scouts, with their high capacity converters, could perform this maneuver, but the ponderous battlewagons and cruisers with their tremendous weight of armor, screens, and munitions couldn't maneuver like this. They simply didn't have the agility. Yet only they had the ability to penetrate defensive screens and kill the Rebel heavies. So space battle was conducted on the classic pattern—the Lines slugging it out at medium range while the screen of scouts buzzed around and through the battle trying to add their weight of metal against some overstrained enemy and ensure his destruction. A major battle could go on for days—and it often did. In the Fifty Suns action the battle had lasted nearly two weeks subjective before we withdrew to lick our wounds.

For nearly a day we ran into nothing, and such are the distances that separate units of a fleet, we had the impression that we were alone. We moved quietly, detectors out, scanning the area for a light day around as we moved forward at less than one Lume through Cth. More would have been fatal for had we been forced to resort to a quick breakout to avoid enemy action, and if we were travelling above one Lume when we hit

threespace, we'd simply disappear, leaving a small spatial vortex in our wake.

On the "morning" of the third day the ships at the apex of Quadrant One ran into a flight of Rebel scouts. There was a brief flurry of action, the Rebels were englobed, a couple of cruisers drove in, latched onto the helplessly straining Rebel scouts and ragged them into threespace. The Rebs kept broadcasting right up to the end—after which they surrendered before the cruisers could annihilate them. Smart boys.

But the Rebels were warned. We couldn't catch all their scouts and the disturbance our Line was making in Cth would register on any detector within twenty parsecs. So they would be waiting to meet us. But that was to be expected. There is no such thing as surprise in a major action.

We went on until we began to run into major opposition. Half a dozen scouts were caught in englobements at half a dozen different places along the periphery as they came in contact with the Rebels' covering forces. And that was that. The advance halted waiting for the Line to come up, and a host of small actions took place as the forward screening forces collided. Chase was in the control chair, hanging in the blackness of the in-



fra band on the edge of normal space. But we weren't flicking in and out of three-space like some of the others. We had a probe out and the main buffeting was taken by the duralloy tube with its tiny converter at its bulbous tip. With consummate pilotage Chase was holding us in infra. It was a queasy sensation, hanging halfway between normalcy and chaos, and I had to admire his skill. The infra band was black as ink and hot as the hinges of hell—and since the edges of three space and Cth are not as knife sharp as they are further up in the Cth components, we bucked and shuddered on the border, but avoided the bone-crushing slams and gut wrenching twists that less skillful skip-pers were giving their ships as they flicked back and forth between threespace and Cth. Our scouting line must have been a peculiar sight to a threespace observer with the thousand or so scouts flickering in and out of sight across a huge hemisphere of space.

And then we saw them. Our probe picked up the flicker of enemy scouts.

"Action imminent," Chase said drily. "Stand by."

I clapped the other control helmet over my head and dropped into the exec's chair. A quick check showed the crew at their stations, the torpedo

hatches clear, the antiradiation shields up and the ship in fighting trim. I stole a quick glance at Chase. Sweat stood out on his gray forehead. His lips were drawn back into a thin line, showing his teeth. His face was tense, but whether with fear or excitement I didn't know.

"Stand by," he said, and then we hit threespace, just as the enormous cone of the Rebel Line flicked into sight. The enemy line had taken the field, and under the comparatively slow speeds of threespace was rushing forward to meet our Line which had emerged a few minutes ago. Our launchers flamed as we sent a salvo of torpedoes whistling toward the Rebel fleet marking perhaps the opening shots of the main battle. We twisted back into Cth as one of the scanner men doubled over with agony, heaving his guts out into a disposal cone. I felt sorry for him. The tension, the rack-ing agony of our motion, and the fact that he was probably in his first major battle had all combined to take him for the count. He grinned greenly at me and turned back to his dials and instruments. Good man!

"Target—range one eight zero four, Azimuth two four oh, elevation one oh seven," the range-finder reported. "Mass four." Mass four:— a cruiser.

"Stand by," Chase said. "All

turrets prepare to fire." And he took us down. We slammed into threespace and our turrets flamed. To our left rear and above hung the mass of an enemy cruiser, her screens glowing on standby as she drove forward to her place in the line. We had caught her by surprise, a thousand to one shot, and our torpedoes were on their way before her detectors spotted us. We didn't stay to see what happened, but the probe showed an enormous fireball which blazed briefly in the blackness, shooting out globs of scintillating molten metal that cooled and disappeared as we watched.

"Scratch one cruiser," someone in fire control yelled.

The effect on morale was electric. In that instant all doubts of Chase's ability disappeared. All except mine. One lucky shot isn't a battle, and I guess Chase figured the same way because his hands were shaking as he jockeyed us along on the edge of Cth. He looked like he wanted to vomit.

"Take it easy, skipper," I said.

"Mind your own business, Marsden—and I'll mind mine," Chase snapped. "Stand by," he ordered, and we dove into threespace again—loosed another salvo at another Reb, and flicked out of sight. And that was the way it went for hour after hour

until we pulled out, our last torpedo fired and the crew on the ragged edge of exhaustion. Somehow, by some miracle compounded of luck and good pilotage, we were unmarked. And Chase, despite his twitching face and shaking hands, was one hell of a combat skipper! I didn't wonder about him any more. He had the guts all right. But it was a different sort of courage from the icy contempt for danger that marked Andry Royce. Even so, I couldn't help thinking that I was glad to be riding with Chase. We drove to the rear, heading for the supply train, our ammunition expended, while behind us the battle-wagons and cruisers were hammering each other to metal pulp.

In the quiet of the rear area it was hardly believable that a major battle was going on ahead of us. We raised the "Amphitrite," identified ourselves, and put in a request for supply.

"Lay aboard," Amphitrite signalled back. "How's the war going?"

"Don't know. We've been too busy," our signalman replied.

"I'll bet—you're 'Lachesis' aren't you?"

"Affirmative."

"How'd you lose your ammo? Jettison it?"

"Stow that, you unprintable obscenity," Haskins replied. "We're a fighting ship."

Amphitrite chuckled nastily. "That I'll believe when I see it!"

"Communications," Chase snapped. "This isn't a social call. Get our heading and approach instructions." He sounded as schoolmasterish as ever, but there was a sickly smile on his face, and the gray-green look was gone.

"Morale seems a little better, doesn't it, Marsden?" he said to me as the "Amphitrite" flicked out into threespace and we followed.

I nodded. "Yes, sir," I agreed. "Quite a little."

Our cargo hatches snapped open and we cuddled up against "Amphitrite's" bulging belly while our crew and the supply echelon worked like demons to transfer ammunition. We had fifty torpedoes aboard when the IFF detector shrilled alarm.

Three hundred feet above us the "Amphitrite's" main battery let loose a salvo at three Rebel scouts that had flickered into being less than fifty miles away. Their launchers flared with a glow that lighted the blackness of space.

"Stand by!" Chase yelled as he threw the convertor on.

"Hatches!" I screamed as we shimmered and vanished.

Somehow we got most of them closed, losing only the crew on number two port turret which was still buttoning up as we

slipped over into the infra band. I ordered the turret sealed. Cth had already ruined the unshielded sighting mechanisms and I had already seen what happened to men caught in Cth unprotected. I had no desire to see it again—or let our crew see it if it could be avoided. A human body turned inside out isn't the most wholesome of sights.

"How did *they* get through?" Chase muttered as we put out our probe.

"I don't know—maybe someone wasn't looking."

"What's it like down there?" Chase asked. "See anything?"

"Amphitrite's" still there," I said.

"She's *what*?"

"Still there," I repeated. "And she's in trouble."

"She's big. She can take it—but—"

"Here, you look," I said, flipping the probe switch.

"My God!" Chase muttered—as he took one look at the supply ship lying dead in space, her protective batteries flaming. She had gotten one of the Rebel scouts but the other two had her bracketed and were pouring fire against her dim screens.

"She can't keep this up," I said. "She's been hulled—and it looks like her power's taken it."

"Action imminent," Chase ordered, and the rangefinder took up his chant.



We came storming out of Cth right on top of one of the Rebel scouts. A violent shock raced through the ship, slamming me against my web. The rebound sent us a good two miles away before our starboard battery flamed. The enemy scout, disabled by the shock, stunned and unable to maneuver took the entire salvo amidships and disappeared in a puff of flame.

The second Rebel disappeared and we did too. She was back in Cth looking for a better chance at the "Amphitrite." The big ship was wallowing like a wounded whale, half of one section torn away, her armor dented, and her tubes firing erratically.

We took one long look and jumped back into Cth. But not before Haskins beamed a message to the supply ship. "Now you've seen it, you damned storekeeper," he gloated. "What do you think?" "Amphitrite" didn't answer.

"Probe out," Chase ordered, neglecting, I noticed, to comment on the signalman's act.

I pushed the proper buttons but nothing happened. I pushed again and then turned on the scanners. The one aft of the probe was half covered with a twisted mass of metal tubing that had once been our probe. We must have smashed it when

we rammed. Quickly I shifted to the auxiliary probe, but the crumpled mass had jammed the hatch. It wouldn't open.

"No probes, sir," I announced.

"Damn," Chase said. "Well, we'll have to do without them. Hold tight, we're going down."

We flicked into threespace just in time to see a volcano of fire erupt from "Amphitrite's" side and the metallic flick of the Rebel scout slipping back into Cth.

"What's your situation, Amphitrite?" our signal asked.

"Not good," the faint answer came back. "They've got us in the power room and our accumulators aren't going to stand this load very long. That last salvo went through our screens, but our armor stopped it. But if the screens go down—"

Our batteries flared at the Rebel as he again came into sight. He didn't wait, but flicked right back into Cth without firing a shot. Pollard was on the ball.

"Brave lad, that Reb," Chase said. There was a sneer in his voice.

For the moment it was stalemate. The Reb wasn't going to come into close range with a warship of equal power to his own adding her metal to the "Amphitrite's," but he could play cat and mouse with us, drawing our fire until we had



used up our torpedoes, and then come in to finish the supply ship. Or he could harass us with long range fire. Or he could go away.

It was certain he wouldn't do the last, and he'd be a fool if he did the second. "Amphitrite" could set up a mine screen that would take care of any long range stuff,—and we could dodge it. His probe was still working and he had undoubtedly seen ours crushed against our hull. If he hadn't he was blind—and that wasn't a Rebel characteristic. We could hyper, of course, but we were blind up there in Cth. His best was to keep needling us, and take the chance that we'd run out of torps.

"What's our munition?" Chase asked almost as an echo to my thought. I switched over to Pollard.

"Thirty mark sevens," Pollard said, "and a little small arms."

"One good salvo," Chase said, thoughtfully.

The Rebel flashed in and out again, and we let go a burst.

"Twenty, now," I said.

Chase didn't hear me. He was busy talking to Allyn on damage control. "You can't cut it, hey?—All right—disengage the converter on the auxiliary probe and break out that roll of duralloy cable in the stores—Pollard! don't fire over one torp at a time when that lad shows up.

Load the other launchers with blanks. Make him think we're shooting. We have to keep him hopping. Now listen to me—Yes, Allyn, I mean you. Fasten that converter onto the cable and stand by. We're going to make a probe." Chase turned to me.

"You were exec with Royce," he said. "You should know how to fight a ship."

"What are you planning to do?" I asked.

"We can't hold that Rebel off. Maybe with ammunition we could, but there's less than a salvo aboard and he has the advantage of position. We can't be sure he won't try to take us in spite of 'Amphitrite's' support and if he does finish us, 'Amphitrite's' a dead duck." The "Lachesis" quivered as the port turrets belched flame. "That leaves nineteen torpedoes," he said. "In Cth we're safe enough but we're helpless without a probe. Yet we can only get into attack position from Cth. That leaves us only one thing to do—improvise a probe."

"And how do you do that?" I asked.

"Put a man out on a line—with the converter from the auxiliary. Give him a command helmet and have him talk the ship in."

"But that's suicide!"

"No, Marsden, not suicide—just something necessary. A



necessary sacrifice, like this whole damned war! I don't believe in killing men. It makes me sick. But I kill if I have to, and sacrifice if I must." His face twisted and the gray green look came back. "There are over a thousand men on the 'Amphitrite,' and a vital cargo of munitions. One life, I think, is fair trade for a thousand, just as a few hundred thousand is fair trade for a race." The words were schoolmasterish and would have been dead wrong coming from anyone except Chase. But he gave them an air of reasonable inevitability. And for a moment I forgot that he was cold-bloodedly planning someone's death. For a moment I felt the spirit of sacrifice that made heroes out of ordinary people.

"Look, skipper," I said. "How about letting me do it?" I could have kicked myself a moment later, but the words were out before I could stop them. He had me acting noble, and that trait isn't one of my strong suits.

He smiled. "You know, Marsden," he said, "I was expecting that." His voice was oddly soft. "Thanks." Then it became dry and impersonal. "Request denied," he said, "This is my party."

I shivered inside. While I'm no coward, I didn't relish the

thought of slamming around at the end of a duralloy cable stretching into a nowhere where there was no inertia. A hair too heavy a hand on the throttle in Cth would crush the man on the end to a pulp. But he shouldn't go either. It was his responsibility to command the ship.

"Who else is qualified?" Chase said answering the look on my face. "I know more about maneuver than any man aboard, and I'll be controlling the ship until the last moment. Once I order the attack I'll cut free, and you can pick me up later."

"You won't have time," I protested.

"Just in case I don't make it," Chase continued, making the understatement of the war with a perfectly straight face, "Take care of the crew. They're a good bunch—just a bit too eager for the *real* Navy—but good. I've tried to make them into spacemen and they've resented me for it. I've tried to protect them and they've hated me—"

"They won't now—" I interrupted.

"I've tried to make them a unit." He went on as though I hadn't said a thing. "Maybe I've tried too hard, but I'm responsible for every life aboard this ship." He picked up his helmet. "Take command of the ship, Mr. Marsden," he said, and strode out of the room. The "Lachesis"

shuddered to the recoil from the port turrets. Eighteen torpedoes left, I thought.

We lowered Chase a full hundred feet on the thin strand of duralloy. He dangled under the ship, using his converter to keep the line taut.

"You hear me, skipper?" I asked.

"Clearly—and you?"

"Four-four. Hang on now—we're going up." I eased the "Lachesis" into Cth and hung like glue to the border. "How's it going, skipper?"

"A bit rough but otherwise all right. Now steer right—easy now—aagh!"

"Skipper!"

"Okay, Marsden. You nearly pulled me in half—that's all. You did fine. We're in good position in relation to 'Amphitrite.' Now let's get our signals straight. Front is the way we're going now—base all my directions on that—got it?"

"Aye, sir."

"Good, Marsden, throttle back and hang on your converters."

I did as I was told.

"Ah—there she is—bear left a little. Hmm—she's looking for us—looks suspicious. Now she's turning toward 'Amphitrite.' Guess she figures we are gone. She's in position preparing to fire. *Now!* Drop out and fire—elevation zero, aximuth three sixty—*Move!*"

I moved. The "Lachesis" dropped like a stone. Chase was dead now. Nothing made of flesh could survive that punishment but we—we came out right on top of them, just like Chase had done to the other—except that we fired before we collided. And as with the other Rebel we gained complete surprise. Our eighteen torpedoes crashed home, her magazines exploded, and into that hell of molten and vaporized metal that had once been a Rebel scout we crashed a split second later. Two thousand miles per second relative is too fast for even an explosion to hurt much if there isn't any solid material in the way, and we passed through only the outer edges of the blast, but even so, the vaporized metal scoured our starboard plating down to the insulation. It was like a giant emery wheel had passed across our flank. The shock slammed us out of control and we went tumbling in crazy gyrations across space for several minutes before I could flip the "Lachesis" into Cth, check the speed and motion, and get back into threespace.

Chase was gone—and "Lachesis" was done. A week in dry-dock and she'd be as good as new, but she was no longer a fighting ship. She was a wreck. For us the battle was over—but

somehow it didn't make me happy. The "Amphitrite" hung off our port bow, a tiny silver dot in the distance, and as I watched two more silver dots winked into being beside her. Haskins reported the I.F.F. readings.

"They're ours," he said. "A couple of cruisers."

"They should have been here ten minutes ago," I replied bitterly. I couldn't see very well. You can't when emotion clogs your tubes. Chase—coward?—not him. He was man clear through—a better one than I'd ever be even if I lived out my two hundred years. I wondered if the crew knew what sort of man their skipper was. I turned up the command helmet. "Men —" I began, but I didn't finish.

"We know," the blended thoughts and voices came back at me. Sure they knew! Chase had been on command circuit too. It was enough to make you cry—the mixture of pride, sadness and shame that rang through the helmet. It seemed to echo and reecho for a long time before I shut it off.

I sat there, thinking. I wasn't mad at the Rebels. I wasn't anything. All I could think was that we were paying a pretty grim price for survival. Those aliens had better show up pretty soon—and they'd better be as nasty as their reputation. There was a score—a big score—and I wanted to be there when it was added up and settled.

THE END

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#### EDITORIAL

*(Continued from page 7)*

ing a contest for the best caption to the cover (below) which appeared on our September issue.

If you can make believe there has just been a roll of drums and a blare of trumpets, we will announce the winner:

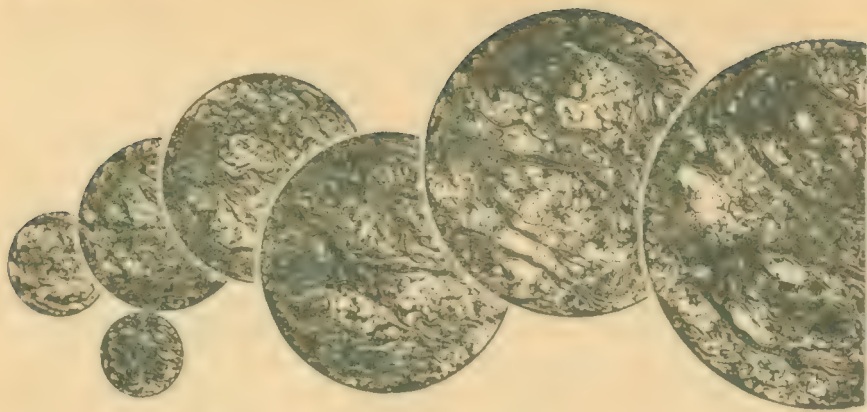
"Relief Is Just a Swallow Away," sub-

mitted by Frank Mattson, of 7 South Jacqueline Drive, Paoli, Pa. Frank's gift subscription is on his way to him now. We received about 100 entries, all of them amusing, and—as is usual in contests—we're only sorry that everyone can't win. For what it's worth in consolation, the runner-up captions in our opinions, were:

"If I Had My Teesh—!" (Les Button, Moreno, Cal. "I Save Them and Send Them Back to Canaveral!" (David Flick, 8 Stuart St., Harrisonburg, Va.)







# The LAST VIAL

BY SAM McCLATCHIE, M.D.

(Second of three parts)

## SYNOPSIS

*The year was 1962. Doctor John Macdonald, Irish-American veteran of the Korean War and now a pathologist at the Civic Hospital in Vancouver, Canada, returned from his delayed summer vacation to find himself in the middle of an emergency. With his laboratory assistant, the lovely divorcee from Louisiana, Patricia Delaney, he had been sailing his sloop up the coast of British Columbia, happily ignorant*

*of what was happening to the people in the rest of the world.*

*In the halls of the Laboratory he spoke to Harry Cope, the English hematologist and his fiancée, Polly Cripps, an electron microscopy technician from Alabama but both of them were much too busy to explain. He went on to the Director's office where Dr. George Hallam, world-renowned virologist from New Zealand, was busy with the*



latest reports. Hallam informed him that an epidemic, believed to be influenza, had struck Vancouver with explosive force a week previously. A second wave of the disease, of catastrophic proportions, was now sweeping over the Pacific Northwest. The symptoms of this illness resembled a mild influenza but some cases had features of mumps. Aside from its amazing infectivity, the disease did not appear to have serious consequences.

Hallam had already succeeded in isolating a virus from cases of the disease and a considerable amount of biochemical and electron microscope work had been done. From the unusual nature of the pictures they had obtained, plus some peculiar findings in the protein structure, he deduced that the virus was synthetic and not just an unusual mutation of the natural influenza. The suddenness of its onset was also peculiar and Hallam concluded that this was a man-made epidemic, probably started by Communist agents. He announced this theory at a meeting of the hospital medical staff only to have it ridiculed because the disease appeared relatively harmless.

Still convinced he was right, Hallam, with John and Pat, initiated a series of experiments with animals to determine what the disease really was doing. As

they worked, news reports told of influenza epidemics in America and Europe and a deadly new disease called the measles that was killing Chinese by the millions and spreading over Asia, including parts of the Soviet Republics. While this seemed to negate Hallam's theory of a biological war being carried on by the Communists, he went on stubbornly looking for some clue to support his idea. As he explained to Macdonald, the Communists, to delude the rest of the world, were quite capable of sacrificing a large number of their own people if they thought that would achieve their objective of ruling the world.

Late that night a pregnant ferret, which they had inoculated with the virus, went into premature labor and aborted. To Hallam and Pat this indicated that the virus could be a secret weapon but John remained skeptical and pointed out that, in pregnant women with the flu, no cases of miscarriage had been reported. They began new investigations, concentrating on the sex glands of both male and female animals. While waiting for the animals to become ill, Hallam sent John and Pat off for a rest. They took the sloop and sailed to a favorite island up the coast. That evening, fog enveloped the sloop in a quiet side channel. A black ship, flying the



Japanese flag, and with a white man looking over the rail, ran them down and damaged the boat but they managed to limp back to port. Once more in the Laboratory, they discovered that male animals were showing far more changes in the sex glands than females. They turned to human victims of the flu and discovered that every man who had had the disease was sterile!

Now Hallam's theory no longer seemed so fantastic. Government officials were notified at once and a national emergency was declared in Canada and the United States. Strict quarantine regulations were enforced to try to protect those who had not yet had the disease. Whole towns were isolated; all overseas travel was stopped and martial law was proclaimed.

Late in the night, Macdonald suddenly awakened to find Vancouver enveloped in fog. A possible clue to the mystery had come to his mind. The Japanese vessel that had collided with his boat could be a Communist ship from Sakhalin, once a Japanese island, and the white man could be a Russian agent. From his knowledge of the geography of British Columbia, John decided that Horseshoe Bay, near Vancouver, was the most likely landing place for enemy agents. The fog would suit them and, as this was the last night before curfew

was to begin, there was a chance he might meet them travelling back to the ship. With Pat in the car, he drove through the fog to the wharf and there, early in the morning, recognized, in a group of three Slavs, the same white man he had seen on the ship. A fight ensued in which the leader stunned John with a black metal aerosol bomb. Pat's screaming frightened the Reds away and hurriedly, afraid both of a police investigation and of catching the flu, she got John into their car and raced back to the Laboratory.

While explaining to Dr. Hallam what had happened, Pat showed him the aerosol bomb. She fumbled it and Macdonald jumped to catch it. Somehow the bomb was triggered and a spray of virus hit Macdonald square on the mouth. Believing he would now get the Sterility-flu, Pat brought John back to her apartment and there, because she wanted his child, she seduced him.

## PART II

### CHAPTER 7

**T**IREED, rumpled, but elated, Dr. Hallam met us as we came out of the dressing rooms the next morning.

"My theory was right. The bomb was full of virus," he said, his face lighting up happily for

an instant. Then, as the thrill of discovery faded, grimness clouded his eyes. "At least now I can prove what we are up against, thanks to you two."

Clinging to my arm, Pat looked at me and sighed, "Thanks to John! But the cost was high."

"Maybe that price won't have to be paid. They've been working all night in Serology, since I determined that the virus gave the same reactions as the flu virus, to concentrate immune globulins from convalescent sera. They just sent up a hundred c.c.'s." He indicated a packet on the table.

"John can take the first dose right now."

"That's fine," I said, "and I certainly appreciate it, but why should I get the serum when other doctors on the outside, treating flu patients all day long, are not getting it. That's hardly fair."

"Democratically speaking, it should be distributed by lot," Hallam said, "but there's no time to argue the point. If it will ease your conscience any, you're getting it, not because of favoritism, but because you, and Pat and I too, are the subjects of the first controlled experiment on human beings with the new virus. We know exactly when we were exposed to it; we know that you, at least, received a very heavily concentrated dose, and if this

globulin proves effective then we can start issuing it in large quantities. The word has already gone out through the Public Health Service, to collect blood and process the serum. By the time we find out if it protects us, it will be in bottles ready for issue all over the country. It's a terribly expensive and cumbersome way compared to using a vaccine, but we have no alternative. They haven't yet got an antibiotic that will attack the flu virus. But we're wasting time! C'mon, drop those pants and take your medicine."

Later, as we sat gingerly on the hard chairs around the dining table, Hallam outlined his plans.

"We won't work with antisera at all. The Routine Lab can handle that. What I want to do up here is to produce something that will give active, permanent immunity . . . not just passive immunity that has to be repeated every week."

"You mean to produce a vaccine?" Pat asked.

"That's one way. We could try killed virus, formalin treated, something like the method Salk used for the polio vaccine. But that too can be done in the Public Health Labs or by the big drug companies. They have all the equipment set up for it."

"It takes at least three months

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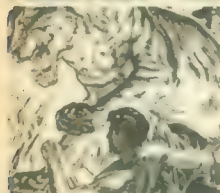
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from isolation of virus to production of vaccine . . . and another three or more until everybody can get a shot."

"Righto, John. It must be done of course, but I'm going to tackle the problem in another way. Maybe we can shorten the time."

"How will you do it?"

Hallam turned to Pat. "I don't say we can do it. We shall try. If we could alter the virus enough, by physical or chemical treatment, to knock out only the sterility effect, we could let people have the flu. Then it would be necessary only to produce a limited amount of the new virus and start it going all over the country."

"That would eliminate all the processing of killed virus, sterilization and so on," Pat said excitedly.

"And everybody who had the virus would produce more and spread it, faster than the drug companies could make it," I added.

"Precisely . . . if it works," Hallam said. "That's what we will concentrate on. Biochem is analyzing the structure of the virus. They are going to advise us when they get the nucleoproteins sorted out. We may be lucky. Sometimes substituting a methyl group by hydrogen or changing the positions slightly will make a tremendous differ-

ence in properties of the molecules. It will have to be rather a hit and miss program. There isn't time to work out the full formula of the virus. By the way, have you seen the paper this morning?"

"Not yet," Pat said.

"They have a new name for it now—Sterility Flu, or S-Flu for short."

"Yeah, short for flu but long for sterility," I muttered.

"Maybe the sperm cells will regenerate after a few months," Pat said hopefully.

"I wouldn't put any down payments on a baby carriage if I were you," I said, as we moved towards the workrooms.

It was the third morning after the fight on the docks. Pat had finished injecting an enormous dose of concentrated human serum into my left buttock and was giggling at my choice selection of swear words when the phone rang. I answered struggling with my pants at the same time.

"Cope here," it said. "Is that you, John?"

"Yes Harry, how are you?"

"I'm afraid I've caught the flu, laddie." He was obviously trying to sound unconcerned. "I've got a fever and all the aches and pains that go with the ruddy stuff. I wanted to tell the Old Man I shan't be working for a day or two."

"Damn it, that's a shame," I said. "Look Harry, why don't you come up here and let us give you some serum, it might forestall the complications."

"Might as well, I suppose, but isn't it too late, really?"

"Too late for the flu, of course, but maybe not too late for the orchitis."

"Right-o," he sounded resigned. "I'll see you in half an hour."

"Wait!" I had the receiver halfway down before I remembered. "Better bring Polly along too. If she hasn't got the flu now, she probably will have."

"Will do," he answered and cut me off.

Pat heard us talking but Hal-lam was away and would have to be told later. Nowadays he was seldom available, being constantly in conference or on the telephone talking to specialists in preventive medicine or virology from other parts of the Americas or Europe. For the moment, Vancouver was the center of attention of the western world. Most of the NATO countries by now were battling full scale epidemics of their own and wanted to know what we had found out about the disease.

All over the province the schools, theaters and all public meeting places had been closed. All main routes of travel were under police and military control

and only the most essential transport was allowed on the highways, the rails, or in the air. The same precautions were soon put into effect across Canada. The United States was under martial law, with the National Guard in complete control in each state. Communities which had not yet reported cases of S-Flu were isolated for their own protection and supplies were sent to them by military convoy. The guards and truck drivers were men who had already had the disease and were no longer infectious as far as anyone could tell. Even so, they were not allowed to come close to the isolated ones who unloaded the supplies with the greatest care after the truck drivers had got out and moved away. In spite of the most stringent precautions, the disease still broke through into some of those areas, and, as the weeks passed by, the uninfected zones were reduced to such locations as small hamlets in the eastern and western mountains, little whistle stops on the prairies and, in the southwest, some of the desert communities.

When the truth about the S-Flu became known, many families in the cities tried to barricade themselves in their homes. Some had already been exposed to the virus and hunger drove others out, only to catch the disease. Later, when the public



health services were better organized, the same isolation techniques used on whole villages were used wherever a family was found untouched. Even in the worst areas a few were known. There were, of course, the cranks and selfish ones who couldn't bear to see others escape their own fate, but as a rule the people responded well. They knew, finally, it was either that or race suicide.

Ten days after exposure the three of us were in fine condition, although my behind felt as if a porcupine had attacked me, from all the injections of serum.

As I complained to Pat, "You women are lucky. You have a bigger target for all these damn needles."

Two weeks went by without a sign of S-Flu and, once more, when it seemed definite that we had escaped, we were locked up again in the Lab. Under the military orders covering all uninfected persons, we had to be isolated, but, as we were still working with the virus, the Research Building was the obvious place. To me, there was only one thing really wrong with the situation. In all the rush and excitement of our research, we had not yet taken out our marriage license, so, not being completely brazen, we had to take to our separate rooms and beds again, with the Chief as chaperone to our phys-

ically consummated but legally unlawful union.

I said to Pat when we were locked up, "That does it! Now, if you really are pregnant, all the women will condemn you as a fallen sister while envying you for being with child . . . besides wondering whose child."

She chuckled. "A most unusual situation, and one I intend to exploit to the fullest extent."

"Do you think you are pregnant?" I said hopefully. "You ought to be, I'm plum wore out trying."

"Well, I'm not ready to take up knitting yet," she joked, "but there are encouraging signs."

All across the continent, virus laboratories were working continuously and almost exclusively with the S-Flu. A number of experiments using convalescent serum were in progress but, as it was not known exactly who had been exposed to virus, and when, the results were hard to evaluate. Now we had proof. We three had been exposed to virus at a known time and yet, two weeks later, there we were as healthy as ever. When the news was published, every blood bank in the country was swamped with volunteers. At first the convalescent serum was given only to the males . . . a dramatic reversal of the laws of chivalry . . . but the women did not com-

plain. They knew that without fertile men there could be no children and to most of them such a world seemed empty indeed. Gradually, as supplies increased, all non-infected persons living in contaminated areas received weekly doses which, though much less than I had had, were found to give sufficient protection in most cases. It was still not known if there were any ill effects on unborn children so pregnant women were also included in the schedule. Where injections were given, and no new cases reported, the quarantine was lifted after a while, but where the disease had never reached, the population was still isolated, awaiting the day when a permanent vaccine would be available. Sporadic outbreaks of the disease were still to occur, months and even years later, among those who had never had it, but at last the major epidemic was over. The discovery, at the Medical Center of New York, of a protective vaccine, eventually made isolation unnecessary.

Long before that happened, the restriction on our movements was lifted. Only those in the uncontaminated areas were confined to their own locality. The rest of us, provided we took our weekly serum shots, were let loose.

"Now I can make an honest woman out of you," I joked as we walked out of the Lab and

breathed gratefully the cool damp air of early winter.

"You don't need to darling," Pat said. "If I am pregnant there's at least a million women envying me right now. When it was easy to get pregnant it was proper to do it only in holy wedlock, as they say, but moral standards are changing already. To be pregnant is an honor, illegitimately or otherwise. I imagine before long there will be a lot of husbands looking the other way or condoning artificial insemination if they can have sons thereby."

"You still want to get married, don't you?"

"Of course, sweetheart," she squeezed my arm, "but I want a proper wedding, not a civil ceremony, and we haven't time for it now."

Late one afternoon shortly before Christmas we were sitting contentedly in front of the fire in Pat's apartment when the front door buzzer sounded. She pressed the speaker button.

"Hello, who's there?"

"It's Hallam. I've brought you a visitor. May we come up?"

"Certainly, come right in."

A few moments later they walked through the opened door.

"This is Inspector James of the RCMP," said Hallam, introducing a tall, thin, grey-haired man in civilian clothes.

"Won't you sit down?" Pat indicated chairs by the fire.

"How about a drink?" I said to the Inspector.

"If you're having one."

"We were going to. Dr. Hallam likes Scotch and water. With a name like yours you might like the same."

"That will be fine, thank you."

I brought their drinks and poured our usual gin and Italian vermouth for Pat and myself.

"Inspector James has been in charge of the investigation into the virus warfare theory," Dr. Hallam began. "He knows your stories already but something new has come up and he wanted to talk to you." He settled back in his chair and looked over at James.

Inspector James took his cue. "Since Dr. Hallam proved that the aerosol bomb contained virus, we have been trying to track down all possible agents, and our maritime division has been searching for the ship off our coast. We have been in constant contact with the FBI and the US Coastguard, and through them, with the US Armed Forces. As far as we can determine, one group of saboteurs inoculated the Vancouver area, the Interior of British Columbia and the Pacific Northwest. Then they disappeared."

"You actually traced some of them?" Pat asked.

"No, I'm afraid we didn't," James said ruefully. "We base our conclusions on indirect evidence, stories like those Dr. MacDonald found in the public health reports, you know, aerosol bombs triggered off accidentally and so on. The epidemic pattern in BC is now following a more natural course so we believe the agents left . . . probably they were recalled right after that fight you had."

"There might still be some undercover agents left," I guessed. "Natural epidemics tend to die out, even as virulent as this one is. However, if they give it a boost from time to time, they might get eighty or ninety percent of the population. Anything less wouldn't be too damaging, we could make up the population deficit in a few years."

"We thought of that, Doctor, and we are continuing the search. However, the main party of agents appears to have left. Some days after your fight, routine air patrols noticed what could have been the Japanese fishing boat off California. Not long afterwards, San Francisco, Los Angeles and San Diego had their first outbreaks. Unfortunately our governments had not yet given the order to find and arrest all agents. By the time that order was given, the ship had disappeared. We presume it stayed out at sea. The epidemics



in Mexico originated in Monterey, Vera Cruz and Mexico City, which makes us think they were started by saboteurs operating from the Atlantic side."

"Last week there was the beginning of an epidemic in Medellin, Colombia, and then in Guayaquil, Ecuador, which appeared separately from the already established disease in Rio de Janeiro, Buenos Aires and other eastern cities of South America. Our consulates and the United States embassies in those countries had been warned and passed the word on to our Latin American friends." He paused to drink his Scotch and then continued. "The countries concerned have been searching their coasts for any sign of strange vessels but without success until yesterday."

"You mean they found the boat?" I interrupted hopefully.

"I believe so," he said. "Ecuador, as you know, owns the Galapagos Islands, well off the coast, and for many years a favorite out-of-the-way retreat for all sorts of people. Now Ecuador claims fishing grounds a great distance off her coast and around the islands. This has led to a lot of international incidents and sometimes to confiscation of fishing boats stopped inside these limits by Ecuadorean gunboats and charged with poaching. Well, these annoying rules proved very useful yesterday. A spotter plane

found a black cannery ship flying a Japanese flag in the waters off the Galapagos. That vessel is now anchored in the main harbor—I forget the name—under the guns of a patrol boat."

"Wonderful," Pat breathed. "What about the crew?"

"I haven't any information about them but I do have a request from the Department of State of the U.S.A. that you fly down to Ecuador and, with their consular officials, and I suppose the Ecuadorean authorities, go to the Galapagos to see the ship and crew. This is necessary because it must be kept secret. We don't want the Communists, if that's who they are, to get suspicious. This must look like a simple arrest for poaching, at least for the present."

"Do both of us go?" I said.

"That was the intention, since you both saw the men and the boat," the Inspector smiled, "and of course all expenses will be paid."

"Oh boy!" I looked at Pat. "Christmas this year is going to be a summer vacation . . . the one we didn't get."

We flew south to Quito in one of the fast new jets of the Canadian Pacific Airlines and from there to the Galapagos in a much less comfortable Ecuadorean Air Force transport plane. The airstrip on Baltra Island, so busy

during World War II, lay neglected and forlorn among the lava blocks and scrub. From it to the Governor's house on Chat-ham Island, we rode first by motor launch and then in a rusty old jeep, probably another relic of that war or subsequent lend-lease.

"I wish I could see a tortoise," I said, clinging desperately to the struts of the canvas top as we bounded through clouds of dust from the jeep ahead.

"They're probably all in zoos now," Pat said, mopping cautiously at her face where the makeup was slowly melting in the steamy tropical heat. "You couldn't see one anyway in this dust."

It was a little cooler on the screened-in porch of the residence. The Governor, a fat little man who looked like the caricature of a Mexican snoozing under a tree, fussed around all the important visitors. With obvious pride he produced cold drinks from what was probably the only refrigerator on the island. I took a long draught of beer, settled back with a sigh and looked out over Wreck Bay.

"Hey! There's the fishing boat." I sat up again excitedly and pointed it out to Pat. The officials exchanged nods and smiles. It was the boat . . . the first test of identification was over. An hour later we went

aboard although there was nothing to see that could be of use in solving the case. All the tanks intended for holding fish were empty and had been flushed with sea water. One tank held fish when the ship was captured, probably as camouflage. There was a well-equipped laboratory but that had been explained away as necessary for marine biology research. There was absolutely no clue. No trace of aerosol bombs or other apparatus for holding the virus had been found.

Ashore again, we were taken to see the prisoners, watching them through peepholes as they exercised in the small jailyard. Almost at once Pat shook me and tried to point through the little peephole before she realized how silly that was.

"Did you see that tall man on crutches?"

"Yes, it's the one I tossed on the deck."

"And there's the second man, and . . . look over to the right there, by the wall! That's the leader, I'm sure of it!"

"Wait till he comes closer," I said, "but I think you're right."

The crew members were circling around the yard, getting exercise under supervision of the guards. As they came closer to our hiding place there was no doubt. Yellow-hair and his pals were there.

One by one, the three Slavs were called in to stand before us. The blond leader was first. I thought his eyes widened a little when he saw me. There must certainly have been despair in his heart when he realized that they were not being held as poachers, but his control was admirable.

"Do you know these people?"

The question was in English.

"No."

"You never saw them before?"

"No."

"What about that night at Horseshoe Bay," I broke in.

"I don't know what you are talking about."

It was useless, and had been from the start. All three men stuck to the same story. They were White Russians in the pay of a Japanese fishing company, partly as laboratory workers and partly for their ability to speak several languages.

We went back to the Governor's house feeling defeated. This was an anticlimax. The only points in our favor were that we had recognized the boat and three crew members immediately, and our descriptions of the men, given in Canada, corresponded quite well with their present appearance. Unfortunately, I had washed the fingerprints off the aerosol bomb in the shower, and with them, the only material evidence of the Russians' connection with the

S-Flu. Or was it? I was thinking over the problem as we sat down to a late lunch. -

While we ate both the Ecuadoreans and Americans questioned us politely but thoroughly. As they explained to us, the question of identity was extremely important. We were the only witnesses that the captured Russians had actually possessed a virus-filled aerosol bomb and on that one fact might rest the future of the world. Where they had come from was by no means certain. The ship's papers, and those of the crew indicated Hakodate as their port of origin but the Japanese embassy in Quito had indignantly repudiated them, insisting that no such ship was registered in Hokkaido. There was nothing to link them with the USSR, which had not bothered, so far, to answer the first discreet inquiries.

"Did the Russians tell you where they came from?" I asked.

"From Hokkaido," the American military attache said.

"No, no, I mean recently. Where has the ship been sailing?"

"They claim they've been following currents across the Pacific, looking for new fishing grounds."

"Then they were not near British Columbia?"

"Not according to their stories, nor to the ship's log."

"There's a couple of ways we



might check that. The Russians went ashore in B.C. Maybe they'll have pollen grains or dust in their clothes that could be traced to that part of the world."

"It's a possibility. We'll look into it."

"And then there's my sloop. We scraped along the side of the fishing boat and some paint must have come off. I haven't had time to repair it. At least that might prove we have met before, if the paints are similar, which would make our bomb warfare theory much more credible."

"It certainly would. We need all the evidence we can get."

"What are you going to do with them?" I asked the senior American officer after lunch.

"We have practically convinced the Ecuadoreans that these people are really saboteurs, but naturally nobody is going to say anything about that. Our Latin friends are past masters of the art of 'mañana'—I think they could give the Russians and Chinese lessons in procrastination. They have agreed to hold the ship as long as they can on the poaching charge. If neither the Japs nor the Soviets claim it, that could mean indefinitely. I think it's too late to do much good," he concluded thoughtfully. "The epidemic is already out of control down here. The health services are too small and the distances too great, to say

nothing of the lack of education of many of the people, ever to stop a pandemic without outside help. We in the States used to send aid but this time we have our own hands full."

"It sounds pretty hopeless."

"It is. Thank God the measles isn't here too or this continent would go back to the jungle."

Back in Quito I stood with Pat on the balcony of our room. We were both quiet, pleasantly tired. In another few days we would have to return to the northern hemisphere and winter, but here, under the summer moon, it was almost impossible to imagine. I looked over the railing down the narrow street with its high-walled houses. In the cool air the faint sound of music and singing carried up from the town. Apparently the flu couldn't dampen all the liveliness of these people.

"If I had a guitar I'd get down there in the street and serenade you," I said playfully, my arm around her slim waist.

"If you could sing, I wouldn't mind," she retorted.

"Doggone it, already you sound more like a wife than a mistress," I complained. "Where have all those romantic ideas and that passionate lovemaking gone?"

She batted her eyes at me.

"Why don't you take me inside and find out."

## CHAPTER 8

IN the early part of the new year, work piled up increasingly. Under instruction from the Minister of Health of British Columbia, the Virus Research Laboratory was turned over to federal control. In addition to our attempt to modify the S-Flu, we were engaged in highly secret research on the synthesis of viruses, in cooperation with the National Research Council of Canada and its American counterpart. Pat was still working although sometimes she was extremely tired and I was worried about her. The work was so secret that, instead of marrying me and settling down to being a housewife, she had stayed on at the Lab at the Chief's urgent request. She and Polly, besides being the best technicians in the hospital, were the only ones who knew the whole story of the virus war. Hallam knew by now that we were living together constantly but we all realized that there was no time for a honeymoon and the legal ceremony didn't seem very important under the circumstances.

A few weeks after our return from Quito the Chief had been called to Ottawa. On his return Pat invited him to our apart-

ment for dinner. Polly and Harry made up the party. A couple of cocktails before dinner loosened our tongues and even Harry, who had been rather morose since the flu caught him, was able to laugh at the Chief's fund of good stories. Polly was her loquacious self again, I noted. Having the flu shortly after Harry hadn't bothered her much, but Harry's evident depression had.

After a heaping plate of lasagne and a large slice of fresh apple pie, Hallam sat back and loosened his belt with a sigh of repletion.

"It may be bad manners," he admitted with a smile, "but if I don't, I'll explode."

I offered him either a Drambuie or Australian port to go with his cigar. It was difficult choice as he loved both. The port won, for patriotic reasons, he said, and he tippled and puffed for a few minutes in complete contentment.

"You know, if I'd been ten years younger I'd have proposed to you myself." He winked at Pat. "The only trouble is that I wouldn't have been able to decide whether to keep you in the Lab or have you stay home to cook."

For a moment there was silence as we watched the fire. Then the Chief took a deep breath and let it whistle out of his nose.

"You're waiting to hear what happened down East, I imagine."

We all nodded and he continued. "When I arrived in Ottawa I checked with the Minister of Health but he wouldn't tell me anything. The following morning we flew to Washington where we were to attend a top secret conference headed by Prime Minister Macpherson of Canada and President Johnson of the United States." He paused. "Johnson, you remember, was the dark horse Democrat who swept the country after the moderate depression of the late fifties and the consequent decline in popularity of the Republicans."

"Anyway," he resumed, "the senior members of the Canadian cabinet and corresponding members of the United States Executive and Congress were to be there, as well as the military heads and observers from the British Commonwealth countries which had representation in Washington. The next morning, in the underground military headquarters which had been prepared for thermonuclear warfare, we assembled at our appointed desks. With their usual love for conferences, the Americans had made elaborate preparations, and we all had name tags and name plates on our desks, as well as microphones and loudspeakers so we could identify and hear anyone in the

room. With very little preamble, both heads of state were introduced. The President was the first to speak. I'll try to give it to you as he said it."

"Gentlemen," the President began, "for one hundred and fifty years our two governments have been at peace and for the greater part of that time we have cooperated amicably on major problems. Since World War Two, that cooperation has continued with such projects as the Saint Lawrence Seaway, the DEW line, the various military highways, coordination of defense plans and military maneuvers, so it seems natural that we should cooperate now, in what I honestly believe is the greatest threat we have ever faced. The Prime Minister and I have already talked this over and he agrees with me that, because of the peculiar nature of this world war . . . and I have no doubt that it is war . . . we can make no public announcements at present, nor should we retaliate in ways which will cause greater harm to our people than they have already suffered." He paused briefly. "Let me make that concept clear."

"As most of you know by now, sterility flu is a synthetic disease agent introduced into the democratic nations by agents of the USSR. The evidence for



this seems conclusive, especially as our own agents have succeeded in getting to us a few samples of the vaccines used to inoculate the school children and the members of the military services of that country. These vaccines were in use before . . . I emphasize . . . BEFORE sterility flu was reported in the western world. Our scientists tell me they contain protection against the S-Flu and probably, though this is not yet proved beyond doubt, against the so-called measlespox which is killing millions of people in Asia and Africa. We have indirect evidence that these same vaccines were also used to protect large numbers of Soviet civilians, adults that is, but not all of them. It has been extremely difficult and dangerous for our agents to obtain enough samples for testing as the vaccines are closely guarded and the whole manufacturing process is of the utmost secrecy. Apparently the dictatorial clique has decided to sacrifice a large number of unwanted human beings in the interests of Communism, under the guise of breeding a better race by elimination of undesirables. By sacrificing part of their own population they hope to persuade us that they, too, are innocent victims of world-wide pandemics. With this diabolical plot they hope to avoid the inevitable re-

taliation that would follow an open act of war such as a hydrogen bomb attack."

There was murmuring through the assembly. Many of the lawmakers had not known all the facts before the conference and none had seen the attack develop as we had.

"The credit for the discovery of this plot goes to Dr. Hallam of Vancouver, Canada, who is here in this room. He first suspected it and one of his associates, an American and former member of the United States Army Medical Corps, had the courage and good fortune to capture the first piece of vital evidence which proves this theory. It was an aerosol bomb, in the hands of men posing as recent immigrants to North America. By an extraordinary coincidence, and shrewd deduction, this gentleman was able to point to the ship that brought these men ashore. In fact his boat was in collision with the vessel as was subsequently proved by comparing paint scars and analysing the chemical composition of the paint from the two vessels. This gave us enough evidence to put our agents in Russia to work, with the result I have mentioned. If it were not for Dr. Hallam's deductions about the nature of the disease, and the early use of anti-serum, we should today be in an almost hopeless situation.

"As a result of this bacteriological, or rather virus warfare, we estimate that at least eighty percent of the population of India, China, the East Indies and Africa has died or will die from measles. There is no natural immunity. Our reports show that it has gained in virulence and shortened its incubation period as it spread and the mortality is reported as one hundred percent of those it attacks. Only pneumonic plague has ever equalled its deadliness and that died out after a while. The great increase in density of populations and in transportation facilities in the past fifty years, plus the artificial stimulation to further spread, has made this disease far more horrible. As you know already, all travel off this continent is now halted and nobody is allowed to enter by sea until a compulsory quarantine period outside the three mile limit has passed. Air traffic is under military orders. All troops and dependents overseas in threatened areas such as Korea, are already evacuated to quarantine zones in safe territory. A few members of advisory groups are staying behind, on a voluntary basis, to help our allies. Other garrisons, for example in Okinawa, are ready to leave."

There was a mixed reaction to this information, obvious in nods or shakes of heads.

"I realize this may leave our bases open to occupation by the enemy," the President continued, "but such would be open aggression and I do not believe they will risk it, especially if they think we are beaten already; they will be expecting to take over in their own good time." He stopped to drink from his water glass. "In the West we have a different problem. The enemy, hoping we would not be unduly alarmed by what seemed little worse than an epidemic of colds, infected us with sterility flu. The plan was to sterilize most of our male population before we became alert to the danger. It almost succeeded.

"I have the latest report from our public health authorities. It is estimated that eighty percent of the population of the United States and Canada has had, or will have, the S-Flu. Some twenty-five million people, both male and female, who are known to have escaped the disease, are at present protected either by weekly injections or by isolation, and we are searching vigorously for others. We hope in a few months time to have a vaccine which will give lasting protection. The combined police forces of both countries are searching night and day for the agents who, we suspect, are hiding in our cities, fanning the flu to fresh vigor whenever it shows signs of abat-

ing. If twenty percent do escape, since most of the females apparently do not become sterile, the future of our countries therefore will depend on the twenty million uninfected males. However, probably half of these are either too old or too young to be of use for procreation at this time. That leaves us with only ten million potential fathers north of the Rio Grande."

He paused to let this sink in and the buzz of conversation broke into excited comment. Tempers were getting short and here and there fists pounded the desks to emphasize a point. The chairman rapped for order and the President resumed as the noise died.

"The situation in Central and South America is worse. They do not have adequate facilities to protect their populations. Evidence is now coming in that S-Flu has also been let loose along with measles in the Orient so that those who escape the one and live may well have been sterilized by the other. The European countries have closed their borders in an attempt to keep the measles out. They are already overwhelmingly affected by the S-Flu.

"To sum up, except for the immunized master race of the USSR, the peoples of the world are either dead, dying or sterile.

If ten percent escape one or the other fate we will be lucky. It might be considered that the war is already won, and so it is in the dying Orient, but we, although we are sterile, are still eager to fight . . . and fight we must if we are to save America and democracy for our children."

A roar of cheering drowned his attempt to continue. Senators, soldiers and members of parliament were up on their feet, yelling, cursing, banging desks or releasing their anger in any way they could find.

"Give them the Hell bomb," yelled one.

"Send over our planes," a portly congressman screamed.

"Kill them all, the monsters."

"It was terrific," Hallam broke off his recitation to comment. "I was sure several of those old coppers would have a heart attack, they were so mad. Then somebody cut off the microphones and the noise became bearable. Finally the President managed to get their attention and we all sat down again and listened."

"Your response is most heartening," the President resumed, "and just what I expected. However I want to make one point clear now. I, and Mr. Macpherson agrees with me, do not believe that the H-bomb or any other ordinary form of war is the answer to this for two reasons.

"Firstly, we have only a small



fertile population left on which to rebuild our nations. The radiation effects of nuclear warfare might well turn those children of the future into misshapen monsters. We would have revenge at the cost of self destruction. Secondly, this is still an undeclared war. The Reds are probably counting on victory and do not know that we are aware of their villainy. They will not expect a counter-attack as long as we pretend ignorance. It is up to us to deliver one that will catch them too by surprise. If we succeed we turn what appears to be inevitable defeat into victory. At the same time we must direct our efforts into other channels and find ways in which to maintain our strength in manpower as well as in machines.

"For our first task—that is, the winning of the war, I believe we must remember the old saying, fight fire with fire. Our best hope is in utilizing our own scientists to produce biological or chemical weapons which will do to the Communists what they have done to us. For the second task I believe we will need new laws and new concepts of human behavior. We will have an opportunity, unequalled in history, to determine the future quality of our citizens. Let us go to this task full of confidence in our ability and thankful the Creator has allowed us another chance."

"After the President spoke," Hallam continued, "there was an explosion of applause, cheering, hand-clapping, shouting, whistling. It was long minutes before Mr. Macpherson could get their attention. He pledged Canada's full cooperation. In turn, the Commonwealth observers promised to get the help of their governments. Finally, committees were formed and the details of the President's broad concepts hashed out. Not every problem was settled right then, of course; that will take months, but the preliminary decisions were made."

"That's about the size of it," Hallam drained his glass, "except for what we are to do. Since we have been working on the S-Flu, we are to keep on, but with a different goal. We now have to build up a virus of our own with either a sterility factor or lethal properties and a very short incubation period."

"That's what the President meant by turning their weapons against them," Pat said.

"That is part of it," Hallam agreed. "It is axiomatic that this new virus must be far enough from the old one that there is little or no cross immunity, so that the vaccine the Reds took will not protect them."

"A tall order," I said glumly, "and while we try to do it, we hope the Commies will sit still,

convinced that we are not suspicious of them."

"Like any murderers," Hallam said, "the Russians have to wait to see if the police suspect them. In the meantime, if they are smart, they won't draw suspicion on themselves by trying to profit from their crime. If my reasoning is correct, they may sit tight long enough for our surprise counterattack to work."

"You said there were several committees, didn't you?" Pat questioned him. "Have you any idea what other plans were made?"

"There are many lines of attack open," the Chief replied. "The Departments of Agriculture of our countries have been working on B.W. for some time, as it concerns plants and animals. If we could ruin Russian crops or kill their animals it might force them to capitulate from starvation. The weather experts are studying ways of doing the same thing by droughts, storms and so on. And of course the physicists think of such things as causing radioactive clouds over Siberia. The trouble is, we don't want to make the Reds suspicious too soon, or give them an excuse for starting all-out atomic warfare, or even so-called conventional war. Our people are close to extinction now, with only ten million breed-

ing males. It seems like a lot but unless they are protected, we are finished."

"What's to be done about this sterility problem?" Polly spoke up.

"There's bound to be a lot of discussion and some bitter arguments on that," Hallam smiled at her. "There are about thirty million women of childbearing age in the United States and Canada, of whom roughly twenty million might be from sweet sixteen to a very desirable thirty or so," he grinned at the girls as he talked and they laughed.

"O.K. that's us," Polly said, "the or-so gals."

Hallam continued, "And only ten million more or less desirable but presumably still potent males from say eighteen to fifty or so." He saw Pat's mischievous smile and added, "Yes, that's me." He went back to his thesis. "Only five million of these would be of compatible age to marry the younger women, assuming nobody is married right now. If we could forget age differences, it means one man to every three women of childbearing age. The problem is much more complicated, as you can imagine, since many of these fertile men are already married and many more women, who could bear children, are married to sterile males. If we were Muslims or old-time Mormons, it might be possible

to start harems of fertile people but with our present customs that's impossible."

"Rough on the sterile males," I said smugly, "but mighty nice for the rest. What are we going to do—wear a badge or something?" I stopped in sudden realization; Harry had had the flu. He sat there silently, his face impassive. The only thing to do was to carry on.

"Get that smirk off your face," Pat ordered. "You aren't a free agent any more."

"Sometimes I envy you real bachelors, Chief," I said, and sighed deeply in mock despair.

Hallam chuckled and then said seriously. "If we sit and do nothing the population will drop off drastically as the old folks die but eventually, in a normal situation, the race would renew itself. It might be a good thing too, we have too many people now, except for one thing . . . we need continuing manpower to beat the Communists."

He stopped to consider his next point. "To me, the logical solution is legal artificial insemination, voluntary of course, with sperm from carefully selected donors. In that way we would have less of a population drop and, I believe, improve the quality of the race; but it's a highly controversial question from scientific, legal and religious points

of view. The committee will take some time and a lot of hearings before making even tentative decisions."

He stopped, and for a moment we were silent, thinking about our problems. Pat spoke first, "I keep remembering how we became aware of the S. factor . . . I mean when that ferret aborted. I wonder if we could use that as our weapon. If all the farm animals and women in Russia were unable to conceive, or miscarry when they did, it would do the trick . . . and it's a lot harder to determine whether a female is sterile than it is in a man."

"You have a possibility," I admitted. "Sometimes it's better to hit an enemy with a variation of his own favorite trick than to have an entirely new approach. If we could do that, we might fool the Reds into thinking something had gone wrong with their own S-Flu virus, such as another mutation. The difficulty is to avoid cross-immunity. We might do better to alter the measlespox so it would turn on them and kill them."

"Then you have lost the element of uncertainty that made the S-Flu so valuable a weapon," Polly said. "They could rally in time to stop it."

"A very good point." Harry spoke for the first time.

Again there was silence. I got up quietly to refill the glasses.



Harry was staring at the fire; his face in the flickering light seemed tired and sad. I caught Polly watching him and saw the look of concern in her face and the faint wrinkle of perplexity between those artistically darkened eyebrows. The Chief was sunk down in his chair, in a daze partly of thought and partly of satiety. Absently he lifted his glass for a refill and then, looking through the deep red port to the firelight, he said to the room,

"The U.S. Navy is sending a special research team out to Formosa and the Army one to Japan, to study measles. Years ago they established well equipped research laboratories in those countries. The Canadian government wants one to go to Hong Kong."

Pat threw a quick glance at me but said nothing as he went on.

"They asked me for suggestions and I told them I'd take the team, but the Premier put his veto on that. He won't let me go. I objected to married men because it's likely to be dangerous work, at least until we get enough of the Russian vaccines to inoculate our men."

"When do they go?" I said.

"The advance parties should leave in a fortnight."

"Somebody should go from here, and since you can't go, that means me."

I had no wish to be a hero but there is a certain pride in a man. Our laboratory was the biggest, and I thought the best, virus research center in Canada. Somebody obviously had to do the dirty work if we were to be saved from destruction. Sooner or later the measles would invade the Americas or be brought in deliberately by the Reds. To paraphrase the old saying, as they wouldn't "let George do it," and as George was my boss, I was next in line.

The Chief was nodding his head in reluctant agreement as these thoughts ran in my head.

"Hold on a minute, there," Harry had come out of his trance and the sadness in his face was replaced by the excited, determined look of the volunteer, the man with an ideal. "This job is mine, it has to be!"

Polly was staring at him, her mouth half open, her drink stopped on the way to her lips. She put it down and spread her hands in appeal.

"I declare, the man's just naturally crazy," she said to Pat.

"They both are," Pat muttered angrily.

None of the men paid any attention.

"Why so, Harry?" Dr. Hallam asked.

"Sir, I've never said much about my parents except that they were medical missionaries

in China and that I grew up there before the Second World War. You knew that, didn't you?"

The Chief nodded in agreement.

"Well, there's one point in my favor. I speak several Chinese dialects and can work without an interpreter. If we go to the mainland I know my way about, too. And I know enough virology to do field work."

Hallam nodded again. "That's true enough."

"But that's not all. I have a personal score to settle with the Reds and by God, here's my chance!" He leaned forward and almost spat the words right into Hallam's astonished eyes. Seeing Harry get angry was something like seeing an iceberg suddenly spout fire.

"I told you that my parents were missionaries in China. What I didn't tell you is that they never got out!"

He stopped. The rush of angry words from his flushed face died away into the room. In my mind they echoed again. "They never got out . . . never got out . . . . never." We waited. The soft rustle of the flames seemed loud as their shadows wavered on the circle of still faces, all eyes were riveted on Harry.

More quietly now, his face once more almost its impassive self, he went on.

"They stayed with the Chinese Nationalist Forces all through the world war and afterwards, when the Communists took over, they were lost. When I was demobbed from the British Army I went to Hong Kong but I couldn't trace them and I couldn't get back into China. Some of the refugees I met thought they'd been executed for aiding the anti-communists . . . mostly their own converts to Christianity, but there was no proof. That's why I came over here to work when I ran out of money. Vancouver is the closest main port to the Orient and I hoped I might keep in touch while I made a living. Now I know they are almost certainly dead . . . and I want a chance to do something to beat those Red pigs.

His voice rose again on the last sentence and he looked straight at the Director. Hallam had sunk deep into his chair, again, his eyes shaded behind the heavy rims of his glasses.

"I see . . . I see now," he murmured. "Yes, you must have your chance."

I looked over at Polly. Her eyes were wet and her lower lip looked suspiciously tight. She said nothing as Pat put a warm arm around her shoulders.

Harry was staring again at the fire. He was not here. Somewhere in China, or maybe no-



where in this world, was the red hell he saw in the flames.

## CHAPTER 9

THE Ides of March, as I like to call the month, were upon us. Once in a while the sun peered through the heavy clouds, sliding its pale beams between their tumbling banks to reach the soggy earth. Then came a night of rain, of heavy wind and thrashing trees; a faint rumbling of thunder over the sea and the mountains. I woke up and lay listening to the water as it dripped on the balcony while Pat, in troubled sleep, muttered

and moved beside me. I woke again to a bright, cloudless sky, a perfect spring day.

After the routine checking of our animals and cultures, Dr. Hallam called a halt.

"Pat, you're tired," he said. "I think you're going stale."

"I'm slowed to a walk. It must be spring fever."

"It's spring all right," I said. "Look at that beautiful sunshine. It's time to shuck off the long woollies and take a big dose of sulphur and molasses."

"What a horrible thought," Pat grimaced, "Did you ever  
"I sure did," I said. "My taste it?"



mother was the old-fashioned castor-oil-is-good-for-you type. She thought I needed a tonic to get the sap running every spring."

"The sap can run again . . . right out to Stanley Park," Hal-lam grinned, "and take Pat with you. She needs a rest and some fresh air. I'm going to play golf. We'll start again tomorrow."

We had reached a lull in our experiments. It was the obvious time for a break.

I drove slowly through the park until, in a grassy enclosure not far from Brockton Point, we found the seclusion we wanted. In midweek, at that time of day, we had the place almost to ourselves. I put down a ground-sheet, opened the car blanket on it, and we lay down. The mild sea breeze rustled soothingly in my ears and brought with it the faint splashing of the tide against the jumbled boulders of the shore. A deep sea ship hooted at the Lion's Gate bridge and, like an echo, the answering call gave it clearance to pass. For a moment more I lay still but the bustle of life around me was too strong to allow relaxation and I sat up to look out over the harbor. I turned to Pat as she lay quietly beside me. The wind had settled her dress closely to her parted legs. I followed the clean lines upward, and when I got to

her eyes I saw that she had been watching me. They sparkled with amusement.

"Like what you see, huh?" she teased me.

"Love it, darling," I replied and leaned over for a kiss.

She broke it off before I was through and as I backed away I saw the slight frown that deepened the lines above her nose.

"What's the matter?"

"Nothing much, I hope. A slight pain in my stomach." She used the word in the ordinary sense.

"Whereabouts?"

"Low down above the pubis. It's gone now."

I laid my hand on the lower part of her belly and palpated it softly. There was no rigidity, no unusual mass.

"Does that hurt?" I probed deeper.

"No, it's a little uncomfortable, that's all."

I thought momentarily of the various possibilities and then dismissed it. The day was too lovely to spoil with a clinical discussion.

"Something you ate, no doubt." I smiled at her and lowered my mouth to touch her full red lips gently, once again.

She pushed me away. "That's enough. This place is too public."

I studied the bold contour of her nose and concluded that it

was too large for true beauty . . . the French influence, no doubt, in her Louisiana heritage. Her attractiveness was in her expressions more than in physical structure, I decided, but the mouth was perfect, no doubt about that, and her grey eyes as clear as a mountain pool filtered through limestone. I snuggled close to her, contentedly, and was beginning to doze in the fresh warmth of the springtime air when I felt her body tighten. I opened my eyes and rested on one elbow, watching her.

"What is it baby, the pain again?"

"Yes, it's crampy now . . . something like a bad period," she twisted a little.

"Is it that time of the month again?"

"It could be. I've been having odd periods, very slight flow. I thought I might possibly be pregnant. It's been that way since I seduced you in December."

"That wasn't seduction, baby. That was merely anticipating the inevitable."

I began to question her seriously. There was little doubt in my mind after a few minutes that, if she wasn't pregnant, she was not behaving as a normal woman should. While we talked the pain returned, cramping and severe. She went white and pressed her hands to her belly in

search of relief. That ruined the day. I took her home immediately.

"Take your clothes off and lie on the bed. I want to examine you," I said when we got there.

When I had finished there wasn't much doubt. She was about three months pregnant and threatening to abort. I left her in bed while I washed my hands. Then I came back and told her. For a moment she tried to be brave but then the tears came and I held her tight while her sobs shook us both.

"I've been afraid something might happen," she said finally, after I'd wiped off her wet face with a towel.

I sat on the edge of the bed. "Why?"

"You know I've been working with female ferrets, infected from the original one that aborted, trying to find out if that virus was a mutant from the S-Flu."

"Yes, I know that."

"I've passed it through quite a few females now and it's been showing definite differences. A week ago, I transferred it again and the ferrets got sick. I was working with one three days ago and it got loose and jumped on my shoulder and sneezed and clawed me as I tried to get it down and put it back in its cage."

"You had your suit on, didn't you?"

"Of course I did, but after I

came out of the shower I noticed a little dampness. I checked the suit and found a defective shoulder seam where the helmet joins on. I suppose the ferret's claws opened it up. With all that movement I could have sucked some infected air into the suit."

"I don't know. With a separate air supply it doesn't seem too likely unless the claws carried virus inside like a hypodermic injection. It didn't scratch you did it?"

"A little bit, I think, but it was on a place where I couldn't see it. I washed it with disinfectant later."

"Oh my God, what next?" I exclaimed. "But you've been having some irregular bleeding before this. Maybe it would have happened anyway. You don't have any signs of the flu?"

"I feel a bit stuffy and aching as if I were getting a cold."

"Well, we'll see. You rest here while I figure out what to do."

The fact that this might be the mutation we were looking for didn't penetrate just then. All I cared about was that Pat was sick and I had to take care of her, if possible, without a scandal. I was standing beside the bed, my mind racing over the various possibilities when she groaned and whispered, "John, the pain is really bad now. I think I'm bleeding too."

I got her a couple of codeine

tablets and then dialled the Chief. This was one situation I couldn't handle myself, for obvious reasons, and I needed someone with understanding and discretion.

He was there in less than fifteen minutes, fortunately having just returned to the club house when I called. He heard my report. He checked Pat himself. She was well along now and we both agreed that there was no chance of stopping the miscarriage.

"Have you been close to many other people in the last three days?" he asked her, looking very disturbed.

"Nobody but you and John, as far as I know," she gasped between spasms of pain.

It was probably true. We three were working on the secret problems in isolation during the day. Polly and Harry helped us with the procedures that had to be done in the main lab and so were not in direct physical contact with us. We seldom stopped work until long after the day workers had left the Lab and were there in the morning before them. We didn't go out for meals during the day as we had all we needed on the top floor. I could see Hal-lam was concerned about the disease getting loose. If the vaccine we had was no protection from this new mutation, and if Pat had a case of flu it obviously



wasn't, then this new disease could raise hell among the people and maybe finish what the Reds had started.

"We can't stay here, and we can't take her to a hospital," the Chief decided. "We mustn't let this new virus get out. I'll have to take care of her myself in the Research Lab. There are some instruments there and we can get more if we need them." He looked down at Pat. "I'm no obstetrician, my dear, but I think we can see you through this if you agree."

Pat smiled tiredly. "You're a doctor, and a good one. Do what you think best."

I had to agree even though it frightened me. I'd seen dozens of similar cases in my earlier days as a young interne but my imagination was too active where my own loved ones were concerned. The main danger was sudden hemorrhage but we could easily get blood sent up to us. Otherwise nature would probably take care of things in its own way. By now it was after rush hour and the Lab would be empty. Once more we let ourselves into the building and went up to the top floor, using the elevator for Pat's sake. She could hardly walk by now, even with our help, and it was a struggle to get her to her room. Once there we stripped the bed down.

I prepped her and draped her for delivery and the Chief gave her intravenous demerol and a capsule of seconal. Then we waited.

An hour later it was over. She had aborted spontaneously, and, as far as we could tell, completely. With the assistance of a small dose of ergot we had controlled the bleeding and the uterus was small and firm. I checked her pulse and blood pressure. There was no sign of shock. She lay there quietly after I had changed the linen and, as I pulled the covers over her, she took my hand.

"I'm so sorry, John," she said weakly. "I guess I wrecked my own plans for having your baby when I got careless with that ferret. Now I'm probably sterile."

She began to cry silently, the big tears rolling slowly on to the pillow.

I stroked her damp hair back from her forehead and kissed her eyes gently. "Maybe you aren't sterile," I said hopefully, "and even if you are it doesn't matter. I love you, and I'll always love you, whether we have children or not."

"I wonder how many years we'll have to spend cooped up in here?" I said, half-seriously to Dr. Hallam later that night. Pat was sleeping soundly under the influence of a capsule of sodium amytal he had given her.

We had cooked a steak dinner and now we sat, weary but relieved, over our coffee.

"Lord alone knows," he said. "We'll have to stay here now until we see if you and I are going to catch this thing and what the effects will be. I hope for the sake of our research project we do get it, although I'm not happy about being a guinea pig. Even if it proves to be a suitable weapon we still have to come up with a cure for it, or rather a vaccine to prevent it, so our own people and our allies are protected."

"Why include the allies?" I said, merely for the sake of argument. "Won't that increase the risk of the Reds learning our plans?"

"It will, unless we take a calculated risk. I believe we should manufacture vaccine and stockpile it, not to be issued until the disease is actually causing epidemics in Russia. Then we can fly the vaccine all over the world and let our friends use it. Some people may catch the disease, but not too many. We might even offer some to the Russians, to allay their suspicions, making sure it's too late to help much."

"But don't you think they'll get wise?"

"Of course! But if we do it right I believe they won't dare to use open aggression any more than we are doing."

"This kind of undeclared war could go on interminably, as the Cold War seemed to do back in the Fifties," I said gloomily.

"It probably could," Hallam agreed. "Our one hope is to effect a change in leaders, or at least in policy, in Russia. Maybe, just maybe, new leaders will arise who will work with the democracies for a world system of government."

"A faint hope," I said, "but I'll go to bed now before that cheerful thought yields to glum reality."

I checked Pat before I turned in. She was resting well and I thought she looked a little less feverish. Her head felt cooler and her pulse was about normal. Sadly, thinking of her loss and mine, I closed the door behind me.

Pat's recovery was rapid and uneventful. The following morning she got up and had coffee with us. In a couple of days she was getting around well although the Chief wisely insisted she rest for long periods and absolutely refused to let her work in the Lab. Part of her restless energy she expended on preparing tasty meals for us until we both began to grumble about our expanding waistlines. There was no sign that the new disease had ill effects other than what she had already suffered.

Whether or not she was sterile was a question that would have to wait. I had no intention of putting it to the test for a good long time. To work for the cause of science was all very well but I could see no point in sacrificing my love to it.

The new virus was christened FS for female sterility and we re-named the old one MS for male sterility. The new one was easy to grow. It thrived on fertilized eggs, in ferrets, hamsters, mice and monkeys; in every animal we could find. With passage through numerous generations it became more virulent until, in its final form, it caused abortion in all pregnant animals. Invariably, after recovery of the animals, our pathologists were unable to find any developing eggs in their ovaries. Because of their short breeding cycle we worked mainly with hamsters, those fat little relatives of the guinea pig. Even the amazing fertility of the hamster was stopped by the FS virus.

"It looks as if we have the answer for the Russians," I said exultantly after we had tallied our results some weeks later.

"I'm not so sure, John, not so sure at all," Hallam said thoughtfully.

"Why is that, Sir?"

"Have you ever thought of the consequences of sterilizing every mammal on earth, and perhaps

the birds and other animals too?" he asked. "This FS virus is powerful. If we start another pandemic it could get away from us. It might increase in power still more, though God knows it's bad enough. And obviously we can't inoculate every animal of all the species it may affect even when we find the vaccine to counteract it. We'd have to build another Noah's Ark and take it out in the middle of the ocean to be sure we could save them from extinction."

"We have a Noah's Ark now." I suggested. "We could isolate the Americans from Asia, Europe and Africa. Australia and New Zealand could do the same. We are doing it for the measles right now until there is enough vaccine to go around."

"That's true, although it wouldn't be difficult for the Russians to smuggle the virus ashore. They might do it if they thought they were licked. The dying soldier often tries to drag his enemy down with him."

"But aside from all that," he continued, "I still don't like it. Men have wiped out some of the most beautiful and interesting creatures of this earth. The passenger pigeon is gone. The bison is a curiosity in National Parks. The trumpeter swan is in danger and the California condor is on its last lap. I don't believe this world was created just so man



could ruin it, and I don't want to go down in history as the most ruthless destroyer of all time. Oh, I know I'll be expected to give this discovery to our politicians. The discoverers of the atomic bomb and H-bomb did just that and their consciences have bothered them ever since. There is a greater loyalty in this world than loyalty to one's country . . . it is loyalty to the human race. I believe in the Golden Rule. Call it Christian logic if you wish. We have already disturbed the balance of Creation in this world as a cancer disturbs the human body, and, like a cancer, when we destroy too much of the world we too may die."

"But the Russians don't live and let live," I objected. "Are you willing to let them take over the world and perpetuate communist doctrines?"

"It's a thought I do not like," he said very quietly, "but all through history "isms" have grown and then have died as time passed. This "ism" too could pass. Perhaps Gandhi was right. Passive resistance won in India and although the Reds are much more cruel than the British ever were, even they can't go too far. Remember the East German revolt and the Georgian riots after the denunciation of Stalin? Remember the horrors of Hungary? Our agents report

increasing unrest in Russia itself. The people are sick of repression and terror. Demands for moderation are even printed in their papers. The Far Left is slowly moving back to the middle of the road. We should go to meet it instead of edging farther and farther to the Right, into the nightmare world of Hitler and Mussolini."

"Then what are we to do?" Do you want to destroy the virus?"

"I don't know. After all, you and Pat are involved in this and may not agree."

"I know the politicians would want us to give them the information," I said. "I'll never forget in the States during the row over the H-bomb and Oppenheimer, how some pompous ass of a senator got up and said he thought scientists should stick to science and leave decisions of ethics and national policy to those who knew best—meaning himself and those like him. Democracy is a wonderful thing but I can't see how getting elected makes any man a sage. I honestly doubt if the ordinary politician is as competent to judge the effects of a scientific discovery as the scientists themselves are."

"What about democracy and the will of the majority?" Hal-lam countered.

"You have me there," I admitted. "I suppose if we adhere strictly to that idea there should be a vote on whether or not to use this new weapon, which, of course, would lose us the element of surprise. But again, what does the ordinary man know about such things. To come right down to it . . . how often has there been a nation-wide vote in any democratic country on whether or not to get into a war?"

"I know of none," Hallam answered, "which means of course that essentially, in times of stress, decisions are made by a few, or even by one man. And that brings us full circle. Shall we make the decision now?"

"I feel somewhat like the old country doctor who taught me obstetrics," I said. "Whenever he was in doubt about a delivery he sat down, lit a big cigar, and waited. Nature usually took care of things for him."

"A smart idea," said the boss. "We'll work—and wait."

## CHAPTER 10

TOWARDS the end of April the Canadian research team left for Hong Kong. Now that inter-continental air traffic had ceased, Sea Island was quieter than usual, but even so, the roar of engines warming up in the cold dawn made it difficult to hear. Out on the tarmac the big

RCAF jet transport rolled ponderously behind its tractor, wings drooping like a great eagle hovering over its nest. It glided silently to the loading area and we moved, a small knot of people, to where we could watch and wait for the word to embark.

"I hope Hong Kong will be warmer than this, Harry," I said, shivering deeper into my trench coat as the cold dawn wind crawled up my sleeves and down my neck.

"April is usually very pleasant," he said. "It's after the winter and before the rains."

"I was there a couple of times after the Korean War. I imagine the Kowloon side is cut off now. Used to be some nice shopping centers there."

"I don't suppose there'll be much left," he replied. "The area has been isolated for months. Everybody who could get away has gone. I expect it will be more like a prison camp than a tourist resort."

"Well, it shouldn't be too bad," I grinned at him. "Some of those Chinese girls with the high split skirts were mighty nice looking."

"Hush up now, you hear?" Polly said. "Don't you be giving him ideas."

"I don't need to Polly, he's been there before."

"Don't pay any attention to John," Pat said. "His mind's in a rut."

"Can you think of a better one?" Hallam asked.

"Oh, you men!" Polly snorted contemptuously.

"The luggage is all loaded, Doctor," A young RCAF officer had come up and reported to Cope. "We're ready to go now."

"Thank you," Harry said and turned to the Chief. "I'll let you know what happens, sir."

"Take care of yourself, boy," Dr. Hallam said as they shook hands.

We turned away, leaving him alone with Polly. In a few minutes she rejoined us, chattering brightly in her usual animated fashion until the plane moved out to the runway and Harry could no longer see us. Then her composure cracked and she cried. Pat and I took her to our place where the two girls buzzed around making breakfast and keeping themselves busy until the shock of parting had worn off a bit for Polly. Over our second cup of coffee she started to talk about it.

"It's a strange thing to say but I'm glad Harry's gone. I just know he never would have been happy with me if he hadn't done it."

"Why do you think that?" I asked.

"He never did tell me much about his people . . . no more than he told you-all. I knew he was holding out on me but it

wasn't any of my business. These English people don't brag much about themselves and their families. Anyway I knew he felt real bad when he got the S-Flu because as soon as he knew he was sterile he tried to tell me to go find somebody else. He seemed to think because he couldn't give me children I wouldn't want him. I told him I didn't hanker to marry a stud horse but it didn't do much good. I guess having no mother and father and then losing his chance to have kids of his own made him feel low. Maybe this will get it out of his head and he'll be OK," she paused, "that is, if he ever comes back. Somehow I feel deep down that he won't."

"Oh, don't be silly, Polly," Pat shut her up. "You got up too early this morning. Here, have some more hot coffee."

With the coming of spring across the cold northern continents, the big counter-offensive had begun. For years the agricultural scientists had prepared for such an occasion and now they went into action. Naturally it was all top secret but we were among the privileged few, since the border-line between the world of plant pathology and the diseases of man and animals had grown increasingly vague. It was essential that we know of their work and they of ours.



Many of the original discoveries in virology had been made by botanical scientists and the first virus to be crystallized, the tobacco mosaic, was a disease confined to the plant world.

Since the Geophysical Year of 1958 and the advent of the space satellites, the meteorologists had made tremendous advances. Using information derived from the weather globes circling the earth, with their data on sunspots and radar maps of storm centers, plus the mass of information now available through the weather stations in the polar regions, at sea and on land, the weather predictors had become extremely accurate. With seeding techniques, electronically controlled, they had made a start at changing the weather, although, up to now, little of this had been done because of a lack of international agreements. Now they were free to try out their ideas. It was interesting to follow in the newspapers the results of their work, and even more interesting to see how the peoples of the world tried to explain the various events. The great pandemics raging across the earth had resulted in a rush to the churches and the rise of all sorts of weird sects, prophets and calamity howlers. This frantic search for security renewed itself when the new wave of disaster began. To avert suspicion,

for a while at least, and also because these great forces could not easily be localised, our NATO allies had to suffer with the Communists. Only the heads of the British Government knew, and they, with their usual courage, had agreed to endure, with the promise of American aid.

The first attack was a weather offensive. Using the jet streams which flowed swiftly to the east, swarms of tiny balloons were released by planes from the American Navy supercarriers in the Atlantic, and from the bombers of the Strategic Air Command cruising in the stratosphere above them. By the use of timing devices these deadly little toys destroyed themselves and dropped the new electronic seeders into the moisture-filled clouds rolling from the Atlantic across Europe. The wettest spring in recorded history was the result. Fields were almost untillable and the hay and grain crops that were planted were never harvested. The wet weather favored the growth of fungus and the rusts and blights so carefully cultivated by our agronomists and seeded into the winds that blew over Europe and Asia, thrived on what remained of the harvest. Further to the east the winds, now emptied of their moisture, sucked water from the steppes of Siberia, where the great new collective farms ordered by Khrush-

chev had torn up the grasslands. Dust storms scoured off the topsoil. No plants could grow. No animal could survive, lacking both food and water. The greatest migration in living memory was the result. The trek of the Okies out of the dust bowl of the early thirties was a mere trickle compared to the flood of refugees that poured east into Russia or south, down into the desert lands of the Middle East and over the Himalayan barriers. Many died before they got to the borders of India and the other Islamic lands. Many were killed by the reinforced border guards determined to prevent the spread of disease and famine in their own ravaged territories.

Of course the Communists retaliated, or perhaps it was in part the result of our own interference with nature. That fall, early frost hit the West Coast and blizzards screamed down from the Arctic over the plains. Our grain crops were ruined and much of our late fruit and vegetables. And now the "Folly of the Fifties", as one presidential candidate had called the price support programs, paid an unexpected dividend. From every cave and warehouse, from dumps and silos and refrigerator rooms, the stores of grain and potatoes, butter and meat, poured out by truck and train. Convoys of food ships had already left for the

NATO countries. The terrible death toll of the measlespox made available sufficient food for the rice eaters of the Indian subcontinent from their existing supplies, since the weather war had had little effect in those regions. Africa, its own population decimated by the same measlespox disease, was left to its rich resources.

The Reds were not yet beaten. Desperate for food, they gambled boldly. The Soviet premier himself appealed to the United States and Canada for aid, in a shrewd psychological move. He knew we did not want to announce to the world that we were at war. It was doubtful if even our own people would believe it. World opinion would be likely to turn against us and uninformed or unbelieving governments, side with the Communists to isolate us. We had to help them, at least in appearance. In spite of tremendous losses the Soviets still outnumbered us and, if pushed too far, might start the long-awaited march into the vacuum left by the dying populations of Asia and the evacuation of our bases, daring us to start an all-out war.

The counterstroke was a masterpiece. Supplies of flour and other prepared foods were rushed, in great fleets of ships, to the European ports of the Russian Empire. Every pound of

flour, every ton of meat, every cask of butter had been treated with the new tasteless and odorless contraceptive compound which our scientists had recently discovered. We never knew if the Russians found out why their women were not getting pregnant . . . the rate of conception drops off in starvation in any case. It did not matter. They had two choices, to eat or to die.

In June, six weeks after he had left Sea Island, we heard again from Harry. Of course Polly had had letters, but purely personal ones as Harry had been much too busy to do more than write, "I love you, wish you were here" notes. Now, finally, he gave us some news. Polly came bursting into the coffee room one morning waving a sheaf of electron pictures in one hand and a bundle of closely written pages in the other.

"I got a big letter from Harry this morning," she said to the three of us around the table. "Would y'all like to hear the news?"

"Aw Polly, I don't want to hear that mush," I kidded her, "Why don't you sell it to True Love Confessions magazine?"

"You shut your big mouth, man, and open your ears."

"Go ahead Polly. Never mind funny boy here," Pat said.

"Harry says they have a big

lab set up in the main hospital in Victoria . . . that's the city on the island, Hong Kong itself, and they're working shifts, twenty-four hours a day, to try to attenuate the measles virus."

"Brother! What a job!" I exclaimed. "One mistake and you've had it."

"Too right, you have!" the Chief said feelingly, his long forgotten Australian slang coming to the surface.

"They had to get out of Kowloon, he says because the refugees sneaked through the barriers into the New Territories and spread the disease. It was terrible because there were about three million people crowded in there. Now most of them are dead and the police patrol all around the island, day and night, to keep others from landing. He says almost all the British, except soldiers, have left. They send them to some small island first and then, if they haven't got any disease, they can go home to England. The research team is behind barbed wire and almost nobody is allowed in or out—but their quarters are comfortable."

"Hot and cold running maids, I suppose," I said.

"If you were there they'd be running, all right."

"Shut up, John. Go on Polly," Pat said and pinched my arm.

"They haven't succeeded in weakening the virus yet and if they kill it with formalin or one of the usual methods it won't work as a vaccine."

"What ways have they tried?" Hallam said.

"He doesn't say. There's one thing I don't like," she said thoughtfully. "He has an idea that if they went into China they might find survivors of the pox in areas where the disease has almost died down and get some serum from them, or perhaps find that the measlespox is weakened in those areas and could be used."

"It's too bad our agents didn't get enough vaccine for testing," I said. "It would have saved exposing our men to that sort of danger."

"One of his ideas is to give volunteers serum from recovered cases and then let them get the measlespox."

"You mean like giving children gamma globulin shots after they've been exposed to measles so they'll get just a mild case of the disease and be protected for life?" Pat asked.

"That's the general idea," the Chief said. "Then, too, he might want to look at the animal population in the area. There's a theory that cowpox was originally smallpox that got into cattle. Now if you get cowpox, as milkmaids in England often did many

years ago, on their hands, you probably won't catch smallpox. That's how the legend arose that milkmaids had lovely complexions. They didn't get smallpox and so their faces weren't scarred like most people in the eighteenth century. Jenner got the original idea for vaccination from that. The same thing might apply to measlespox. If he could find a mild form of it in some animal we could use that as a vaccine. We try to do this in the Lab by inoculating animals. Harry wants to go out into the devastated areas and see if nature has done it for him."

"That may be soon, Doctor," Polly said, "but I'll bet he's also hoping to pick up news of his folks."

"Could be," Hallam agreed, "but they are very small pins in a terribly big haystack, if still alive."

"That crazy man," Polly murmured. "I know he'll kill himself yet. If he doesn't get the pox the Reds will catch him."

"There's not too much danger from the Chicoms right now," I said. "The way they are dying out, the border guard must have holes in it big enough to take a division of troops through, let alone a small reconnaissance party."

In the early summer of 1963 Pat had completely recovered



from her miscarriage. The Chief and I had suffered nothing more than mild colds from the FS-flu. We had set up new experiments to see if we could temper the destructiveness of the virus with the intention of confining its effects to the human race.

"I have no compunction about using it on the human race," Hallam said. "The human being has free will and should be prepared to take the consequences of his follies and work out his own salvation.

I had to agree.

One late summer day when the tests were running smoothly he said to me, "John, I think you should take Pat out of here for a month. There's no point in isolation now we are all recovered, and you need a rest."

"What about you?" I said.

"I'll take a break after you get back. Besides, I want you to do a little experimenting on your vacation."

I wondered out loud what was coming next.

"Well," he smirked, "this is a good chance for a honeymoon and you might find out for me how permanent the sterility effects of the original FS-flu are.

I couldn't think of a more pleasant experiment.

The United Church ceremony was a quiet one. Both Pat and I felt that, having been married

before and having subsequently made fools of ourselves, we didn't want much fuss this time. The ceremony was quiet but the party that followed certainly was not. Dr. Hallam had recently moved into a penthouse apartment in the swanky new Lion Heights district overlooking Howe Sound and the Straits of Georgia. From the church it was a quick run out to his home, followed all the way by the hooting automobiles of half the Laboratory staff and a good crowd from the Hospital itself.

From the corner living room of the apartment there was a magnificent view south to Point Grey and the University. Off to the southwest, in the haze of late afternoon, the Olympic mountains glimmered faintly across the water and the dark silhouette of the Island cut the western horizon. To escape for a moment from the uproar, I had moved out onto the rooftop garden and, with my arm around Pat, watched the slow ending of the day. Behind us the french doors opened as Hallam joined us. The buzz of talk and laughter, heightened by the cocktails, broke the quiet of our thoughts and died again as he closed the doors behind him.

"This really is a lovely spot," Pat said to him, "Will you pardon a woman's curiosity and tell me, isn't it terribly expensive?"

Hallam grinned. "It would be except that I'm part owner of the building and get a cut rate."

We stood there quietly, absorbed in the view, then Pat took Hallam's arm. "Let's go in now," she said. "We will have to leave soon."

The noise came at us in waves as we opened the door. Little knots of people were all over the rooms, talking, laughing, eating, moving about and re-forming new groups.

"They obviously don't need us," I whispered to Pat. "Let's get out of here." I winked at the boss and he shook both hands to us, prizefighter fashion, as we slipped out.

The Ferguson glided into the driveway without the motor running as I tried to escape. A roar of handclapping, cheers, jeers and yells broke out above. It was too late for them to catch us so they waved and shouted words of tipsy wisdom. A few ribald male remarks were stifled by feminine hands and the last howls and shrieks faded back up the hill. At the bottom I stopped and removed the inevitable tin cans and old shoes, brushed off all visible confetti and moved on towards Horseshoe Bay. The sloop was ready. While I started the motor and cast off, Pat changed into slacks and sweater in the cabin and then got busy making sandwiches and coffee. I set our

course around Bowen Island, heading for the Sunshine Coast and the long winding fiords that split the timbered ranges.

It was hours later. At Pat's suggestion I had gone below for a rest and then had relieved her while she did the same. We wanted to get well away from the big city and the ocean traffic before we stopped. About two o'clock she wandered up from below. The moon was high now and in the clean cool light we were close to shore. Here the coast was deserted and, as we skirted a rocky point, a small cove appeared, the entrance barely large enough for the yacht. The moon, going over to the west, shot its light through the gap to show a sandy beach dimly outlined at the farther side.

"John, let's look in there. It seems a likely place to stop."

I cut the motor and glided through the entrance, trusting the smooth unbroken surface to cover enough depth for the boat. The million pinpoint lights of our phosphorescent track died away as we slowed. The bowsprit almost overhung the sloping beach when I dropped anchor.

"Plenty of depth here," I said quietly, reluctant to break the silence. "It should be a good spot to spend the night."

Sheltered by the northern arm

of the cove, the remains of an old cabin hugged the rising slope. In front of it, in the little clearing, a few old fruit trees, branches broken with age, spotted the grass. The small stream that probably had tempted this early settler ran at one side of the cleared land, the water spreading out to glitter over the stones and sand of the beach before losing itself in the dark salty bay.

"What a wonderful place for a swim," Pat whispered, her eyes enormous in her shadowed face.

The air was still warm, with enough breeze to discourage any mosquitoes.

Quickly Pat stripped and stood there proudly, waiting for me. To keep her hair dry she had put on a white bathing cap and, in that pale light, she shone like some strange shaven statue from an old Egyptian tomb. She moved and the illusion disappeared. Naked, I reached for her and pulled her close. For a moment she clung to me and then, teasingly, she pushed me away and dived over the side. The water was cold and the chill of it on my skin soon relieved the tension the sight of her body had aroused in me. For a while we swam and splashed in the shallows, then I loaded the dinghy with towels and blankets, threw in a flask of rum with some cokes to dilute it and we went ashore. Her hand

in mine, we walked around the tiny cove, the sand coming up pleasantly between our toes and the cool salty water sparkling on our skins. I brushed it out of my hair and Pat shivered as the fine spray hit her bare skin.

"Better get warmed up," I said, and led her back to the clearing.

There, from a deep pool dug in the stream by that early settler, I poured fresh water over her and rubbed vigorously with my hands to get off the salt and warm her up. The throbbing aching torment of my desire returned. She moved closer, her tongue wet on my lips.

In the soft grey glow of late moonlight, her face, twisted for a time by the agony of her passion, was smiling calm and her eyes looked up at me serenely. I rolled away from her and pulled the blanket over us. She cuddled into my shoulder and slept.

## CHAPTER 11

THE sunny days slid by as we explored farther and farther north. The weather held fair all that month except for a few quick showers that washed the warm decks and cooled the quiet air. There was little good sailing weather but we didn't worry. There was fishing enough, swimming enough, and loving enough to fill the days and nights.







In a deep side channel of Louise Inlet, I was trolling one day in the fourth week. Pat held the tiller and the engine, throttled back hard, barely pattered along. Then, above the noise, the sound of a more powerful engine rose and gained rapidly in intensity. Around the bend from the main channel an amphibian swung into view and banked to glide down over us. It banked again, full circle, and the pilot let down and taxied up behind our boat. I stopped the engine and waited. The small door on the passenger side opened and a bare head stuck out. I recognized that full, cheery face.

"For the love of Pete! It's the Chief," I yelled above the motor.

Pat nodded, not too happily. Her woman's intuition was probably working overtime. A short time later we anchored inshore. The Boss and his grim-looking pilot blimbed aboard.

"Lord, we've had a time finding you two," Hallam sighed. "This is Colonel Jones, United States Air Force."

I raised my eyebrows at Pat. Neither the man's flying suit nor the plane's markings had shown any indication of their military nature.

"How do you do sir," I said, as I shook his hand. "Are you up here on a vacation?"

"Strictly business, I'm afraid," he said crisply.

"Business? With whom?"

"With you." The lips opened and shut in his face like a ventriloquist's dummy.

He was strictly business, I thought. "With me?" I turned to Hallam. "What have I done now?"

He didn't smile at my feeble joke. "It's not what you've done, John, it's what they want you to do. Colonel Jones is from the CIA."

"Oh oh, the cloak and dagger boys," I thought. "Trouble coming up." Out loud I said, "We might as well sit down and be comfortable while we talk. Pat, how about some beer?"

The Colonel was obviously impatient but he tried to swallow his irritability with his beer.

"It's nice being a civilian at times," I was thinking. "I don't have to take any more guff from the brass. This guy's obviously a West Point type in a hurry and it must gall him to have to wait on my royal pleasure. He wants something. Let him wait for it!"

It was a rebellious thought but I'd been prodded painfully by his classmates on occasion in the past. I couldn't resist getting a little of my own back.

"All three of you are cleared for Top Secret," Jones said. "I checked before I came out here."

I took a long drag at the bottle. "What about yourself, Colonel?" I smiled thinly at him.

Silently, stone-faced, he showed his credentials. Pat frowned at me. She thought I was being unnecessarily cool to a guest. Rivalries in the service meant nothing to her.

I grinned at him and the tension eased. "The old routine, Colonel. I wouldn't want to foul up with a security officer watching me."

The stern exterior cracked as he relaxed. "I hate to butt in on your vacation like this. I had no choice. We have a deadline to meet."

"Sounds familiar," I murmured. "Submit a complete report, in five copies, based on information you'll get tomorrow, to reach headquarters not later than yesterday. Well, give us the bad news."

"First let me give you an estimate of the situation as we see it. That will put you in the picture."

"You mean I'm being framed?" I joked.

He actually smiled. "The weather and biological offensive against the Reds are now at their height," he began, "and are proving most successful. We anticipate they will exhaust their food reserves very soon and will be desperate for more. If they ask us, we will give them some this winter, under certain conditions." (He was referring to the use of the contraceptive drug in

that food, as I learned later.) "That will give them a respite, which we can't very well avoid, and the war is expected to continue on into 1964. By early summer, some eight months from now, we estimate that continuation of our offensive will drive them to the wall, since we will then inform them that we cannot give them any more supplies from our store. It is then that we can anticipate the hidden war breaking out into the open. Even if they retaliate in weather and bacteriological warfare, they must know we can win because our hoarded supplies will keep us going while they starve. They have to plan a knockout blow and yet our G-2 people believe they will not use atomic power. They won't use it because of its dreadful after-effects on future populations. Even the so-called clean bombs must affect many survivors and, in an already decimated world, they cannot afford to have contaminated survivors from which to rebuild the race. Also, they are sure that we won't use it if they don't. Now, as far as we can foresee, that leaves only one other way to achieve the knockout . . . by the use of nerve gases."

"But we have nerve gases too."

"Yes, of course. However, we have information from our agents in Russia that, as a last

desperate chance, they will fire their intercontinental missiles, plus shorter range rockets from their submarine fleet, at every major population center and key military target in the U.S.A. and Canada. Probably, in addition to nerve gas, the missiles will be loaded with various deadly bacterial toxins and bacteria, and quite likely new viruses of even greater lethal power than the measles, able to attack and kill people in as short a period as twenty-four hours. We also believe that, in the temporary paralysis of cities, military posts and air bases achieved by the nerve gases, they will attempt to land airborne or rocket-borne troops to capture and hold our main centres. As you know, we are not mobilized because there isn't supposed to be a war on. Their plan might be fantastic enough to succeed."

"Who dreamed all this up?" said Pat, skeptically.

"It's no dream," the Colonel said. "There's a strong moderate element in Russia today, mainly in the Armed Forces and the new managerial classes, that is sick of dictators and war. They have contacted us and are ready to revolt when the Reds are a bit more disorganized and the people still more starved and discontented."

"Where do I come in?" I said.

"You are still a Lieutenant

Colonel in the army reserve."

"That's right."

"The President himself, on the advice of his counsellors, asks that you volunteer for special duty. As there is no declared state of emergency, you cannot be recalled. In fact if you don't want to leave Canada he can't force you to. He simply requests that you volunteer."

"That's all lovely, and very sweet of the old boy," I said sarcastically. "Why me?"

"On the Imjin River, in North Korea, there is a large plant which is very busy manufacturing those deadly viruses I talked about. The Russians have quietly taken over the country, and in fact the whole of China, since probably there are less than fifty million healthy Chinese alive today. The crowding into communes in the Fifties really facilitated the spread of the measles we hear. We think the Kremmites want to keep an eye on them; probably want to sterilize with the S-Flu, those left by the other diseases. To have such a dangerous factory well away from their own homes and close to their enemies in Japan, as well as reasonably convenient to the submarine pens around Vladivostok, are other likely reasons for its location there. Whatever the reasons, the factory is there. Now, by good luck, the senior virologist is one of the moderates

who is heartily sick of all this killing."

"Hear, hear," the Chief said. "I know exactly how he feels."

The Colonel nodded and went on. "He has agreed to give us the biochemical formulas of the viruses plus methods of growth, how to make the vaccine against them, and finally a sample of each culture to work with. We believe that if we have that information . . . and also we hope to sabotage their installation . . . we can defeat the attack before it ever starts. We plan to destroy their nerve gas centers at the same time and aid the rebellion," he concluded, "but that doesn't concern us here."

"I still don't see what I do," I said, although I had an uneasy suspicion.

"You were a paratrooper, weren't you? And you served in Korea."

"Yes, a long time ago," I admitted grudgingly.

"And you are a virologist?"

"You know that."

"You also speak some Japanese, Korean and Chinese."

"I wish I'd never admitted it."

"We want you to parachute into North Korea with a Special Forces Group, go to this plant, get the necessary information and sample viruses. The information cannot be written down for security reasons and because of

this and the dangerous nature of the viruses we feel that only a man of your qualifications can be trusted to handle it."

"That's what I was afraid of," I said.

"Will you do it?"

"In the name of heaven, Colonel!" I exploded. "Twenty minutes ago all I had on my mind was catching a fish for supper and now you want a snap decision that may cost me my life."

"I'm sorry, Doctor," his face froze again, "but we haven't much time."

"The hell with deadlines," I growled. "I'm not on active duty now and no damn chairborne Pentagon pencil pusher is going to impose a time limit on me. Let him get out and do it himself if he can't wait."

"Unfortunately you are the best qualified," he said stiffly.

"Yeah, unfortunately for me," I sneered. "How is it the guys best qualified for the dirtiest jobs don't seem to be best qualified for promotion too?"

"John, please!" Pat put a hand on my shoulder.

"Sorry Colonel," I choked down my anger. "You hit some raw nerves with that best qualified remark."

"I'm sorry too, Doctor. We know you've already done more than your share. Perhaps if you think it over for a while, you'll want to help us."



"How do you propose to go about it," Hallam said to Jones.

"Colonel Macdonald, or a substitute, will have to renew his airborne training and get into first class physical shape. There will also be language school to brush up on his Korean and Japanese, with some basic Russian."

"Why Japanese?"

"It was the official language in Korea until after World War Two and many of the older people can speak it. What he misses in Korean he might be able to pick up in Japanese."

"How long will this take?" Pat said.

"About six months. Then there will be a month of special preparations for the attack itself. After that we wait for the right weather and the psychologically correct moment. The idea is to delay until the last possible moment before the Reds are ready to attack us and pull the rug out from under them. We hope the confusion and loss of morale will be so great that the partisans or maquis or whatever you want to call them will be able to rise and overthrow the communist regime."

"Adding all this up," I said, "I gather you expect the special training to start in about two weeks from now."

"That's right," Colonel Jones said. "That's why we need an answer soon."

"I have one week left of my vacation before I return to Vancouver. I'll let you know then."

"Thank you. I'll leave all the necessary information with Dr. Hallam at his office." Jones got up, bent slightly in Pat's direction and again to me, while he gave us a formal handshake. He climbed over the side and got into the amphibian without a backward glance.

"I wish I hadn't had to do this," the Chief said hurriedly as his big hands reached out for ours. "Try not to let it ruin the rest of your vacation. God bless!" He squeezed and my hand tingled until long after his great frame had vanished into the cabin of the flying boat.

After they had gone Pat cooked the fish I'd caught and we sat down to eat and talk things over. I hadn't committed myself in any way. My days as an eager beaver soldier were long gone and I was remembering the old army saying, "Never volunteer for anything." Pat had been unusually quiet. I knew she would go along with any decision I made but it is still not an easy thing for a woman to sit still while her man is thinking of committing what might turn out to be suicide.

"Want a drink?" she asked, getting out the bottles before I could answer. She mixed us a

rum collins, taking the last of the ice from our little refrigerator.

"Well, what are you thinking?"

"I'm thinking just how much hell the next eight months will be."

"Hell for both of us, darling," she said. She leaned across the narrow table to kiss me. "I'm glad you want to do it. It may not win the war but you'd never be happy again if you didn't try."

I didn't relish the idea at all but I knew she was right. I'd always been a volunteer. It was too late to change. I heaved up off the bench and went on deck. The stars were out now and high overhead an Alaska-bound plane hummed by, its green and red lights winking.

"Red light . . . green light . . . GO," I thought and remembered again the quivering anticipation as I stood in the door of the C-119 watching for a little green button to flash on. I shivered with old remembered fears and I felt Pat's arms go around me from behind as she kissed the back of my neck. I think she sensed my trouble. She knew how I had sweated out jumping and the long strain of combat duty.

"Come down below, sweetheart, it's bedtime. Come and let me help you forget. There are so few nights left."

I rolled over in the soft sandy

ground and pulled hard on the risers to spill the air out of my parachute. The breeze was dying. The spotted cloth wavered, flapped, and the canopy collapsed. I got to my feet, hit the box and stepped out of the slack harness. Slowly I straightened the canopy, folded it over my arms down to the back pack and tightened the straps over it. I picked the whole thing up and zipped it into the carrying bag. The trucks were waiting across the drop zone. I heaved the heavy bag up across my shoulders with the handles on each side of my neck and started towards them. My first jump was over. I was tired . . . tired . . . tired and quietly proud. The first one was past. I was a paratrooper again.

"How was the jump, Colonel?" A small black haired officer of about my own age came up behind me. Captain Balakireff, the son of White Russian refugees and lately of Shanghai, China, spoke with a faint accent. His thin lips and hollow cheeks reminded me of the ascetic saints on a Russian ikon. He should be wearing a beard, I thought.

"Pretty good, Blackie. It's been a long time."

Trudging beside him through the loose sand, a tall blond and thick chested Lithuanian Captain called Makstutis grinned down at me. "Need a hand with that pack, Doc," he said, com-

pletely unconscious of the difference in our ranks.

"No thanks Mak. I may not be in shape but I'm not that decrepit."

Closer to the trucks Lieutenant Pak On, a native born Korean imitation of Balakireff awaited us. With him was Lieutenant Kim Cho Hup, a living embodiment of the Chinese god of happiness with his round smiling face and the figure to go with it. For all his weight, the result probably of too much feasting on his Hawaiian island home, Kim was quick and tough, a veteran of the early days in Korea with the 25th Division.

These four, all war veterans and career men formed, with me, the officers' component of a Special Forces team. With us, as we assembled around the trucks were twenty five enlisted men. All were Orientals, a few native born, but mostly Hawaiian sons of immigrants. They too were Special Forces volunteers, qualified both as paratroopers and rangers. Each had a specialty, weapons, demolition, signal, engineer, medical, and each could take over at least one other job in an emergency. They had to be fluent in one of three languages, Korean, Japanese or Mandarin Chinese.

We jumped as a team in two sticks, led by the Slavic officers. As senior officer I acted as jump-

master in training although in the actual attack I was to be protected rather than to command. The operations plan was simple. We were to drop in North Korea in high mountain country near our objective. The three whites would masquerade as Russian officers. We hoped to pass as inspectors or medical health officers touring the country with a North Korean Army escort. As the Russians had taken control in China and North Korea, we should be able to get by, at least for a while, considering the disorganized state of that plague-tortured peninsula. A rendezvous with the agent who had contacted the enemy virologist would be arranged. From then on it was up to us. Afterwards we were to be evacuated by submarine from a pre-designated spot on the coast.

We climbed into the trucks. As they rolled down the road back to our quarters, I pulled Pat's latest letter from my pocket and skimmed once more through its well remembered pages. Because of the danger she was no longer working with the research project but was helping Polly on the electron microscope . . . Polly had heard from Harry . . . He was in Formosa training with the Americans and Nationalist Chinese for a landing on the Chinese mainland . . . he had sold them on the idea . . . Polly

was worried of course . . . She was too . . . would I please be careful . . . she loved me and missed me so much . . . she wanted me to come home safely."

I folded the letter and put it away. I'd be coming home all right! On that I was determined. No damned disease, no stupid Communist fanatic was going to stop me!

The emphasis on pure physical conditioning changed although we continued our long marches and strenuous exercises. Now we worked constantly in Russian or Korean uniforms, used enemy equipment and talked Russian or Korean. It was hard at first but gradually I achieved a basic knowledge sufficient to deceive a casual observer.

A week before Christmas General Rawlins, the Special Forces commander, called me into his office. He came around his desk as I saluted.

"You're looking fit, Macdonald. The instructors tell me your team is progressing very nicely."

"Thank you sir."

"In view of their reports I am letting you and your men off for Christmas and New Years. Air transportation will be arranged as far as possible. Warn your men again about security regulations. See the Chief of Staff for the details." His normally stern face cracked into a smile and he stuck out his hand.

"Merry Christmas," he said.

The day following my return to Vancouver was Christmas Eve. Polly and Pat and I drove out to have dinner with Dr. Hallam in his hill-top apartment. We found him dressed in a white chef's cap and apron busily sugaring the top of a ham. In a moment the girls found aprons of their own and began to get in his way. I got busy with the brandy bottle and the egg nog.

"How's the research project coming, sir?" I asked as we sipped our drinks.

"We have a variant of the FS flu now that sterilizes only monkeys. It may be the weapon we're looking for." He paused and looked mischievously at Pat. "Did you know, by the way that the original FS virus does not cause permanent sterility in primates?"

I caught the glance and her look of dismay.

"Primates? You mean humans too?"

He nodded. I turned to Pat.

"Then you aren't sterile? You didn't tell me you had a biopsy."

This time Hallam laughed outright. "How many months have you been away soldier?"

"My God! Pat . . . you're pregnant!"

She came to me. "Yes darling. I am. I didn't want to tell you because I might miscarry again:



but I went to Ray Thorne and he says I'm doing just fine."

"Oh baby," and I pulled her into my arms. "What a wonderful, wonderful Christmas!"

It was after dinner. We sat around the fireplace in silence. To one side the Christmas tree, with its tinsel streamers and glass ornaments, threw back a shower of sparks in answer to the flames. The coffee was finished and I savored the last drop of Drambuie slowly, letting it bite my tongue with its pungent sweetness.

"I wonder where Harry is." Polly spoke as she looked into the fire, absently twirling the liqueur glass in her fingers.

"Have you had any news?" I asked.

"I got a letter this morning," she replied and added after a pause. "They left for the Chinese mainland a week ago."

The wood crackled on the hearth and the room was silent again. I thought of the bare brown hills of China; of the squalid mud huts like those I had known in Korea; of the lice and fleas, the filth and bitter cold; of the snow that sprinkled the stunted brush and dusted the stubbled rice paddies. I thought

too of the death that lingered in those dank and sweaty rooms, black holes of fear and despair.

"God help them," I said fervently and added a little prayer for myself in the days to come.

Polly began again. "He wrote the letter on the assault landing craft and sent it back with the Navy. Apparently they had not managed to perfect a vaccine before they left Formosa so the party is unprotected against the measles. They hope to find enough survivors on the mainland to collect antiserum, provided they can keep away from Red patrols." "It's a shame they couldn't have waited another couple of weeks," the Chief spoke up.

"Why so?" Pat asked.

"I got news this morning that our agents in Russia have sent out more of the vaccine, stolen by the partisans, I suppose. It should be available in a day or so and some of it will be rushed out to the research teams for their protection."

"Maybe they'll send another team with vaccine after the first," Pat suggested.

"I surely do hope so," said Polly, "I'm real worried about that man."

*Concluded Next Month*



# FEEL RUN DOWN ... TIRED ... ?

By LESTER DEL REY

Has sf once again beat us to the punch? Twenty years ago Bob Heinlein wrote "Waldo," whose hero was a weakling because high-frequency radiation drained his nervous energy. Now the indefatigable (or should it be "fatigable"?) Mr. del Rey marshals evidence that seems to turn prophecy into fact, and our nerve cells into poor confused and overworked antennae.

THEY don't build children the way they used to, according to some parents and a lot of educators. That sounds like the perennial complaint of the older generation about the new crop of humans, of course. But there seems to be significant evidence to back up the statement. A few movies of kids at play show that the youngsters are as loud as ever, but a lot less prone to en-

gage in really active games. Pedometers attached to young legs don't register as many miles per week as were considered normal twenty years ago.

Naturally, the educators have the answer, based on their prejudices and abetted by their general ignorance of the great classics of science fiction. They see the children squatting listlessly for hours in front of television

screens, so they blame everything on the TV programs for children. It doesn't occur to them that no naturally active kid is going to be *able* to sit still for hours, even for synthetic blood and gore.

Still, maybe the educators are partly right. Maybe television broadcasting is in some measure responsible for human lethargy, even though the nature of the material on the screen has nothing to do with it. If so, it involves one of the truest and most overlooked prophecies of science fiction.

About twenty years ago Robert A. Heinlein wrote a story called *Waldo*, a lovely blend of science and what then seemed like fantasy. The story is already listed as prophecy, since it forecast the mechanical servo-operated hands used in today's "hot" laboratories. But there was another idea buried in the story which may prove to be far more prophetic.

The hero of the novelette was a man afflicted with "lethargica gravis"—he was so darned weak he couldn't stand up in earth's gravity. I remember this part vividly because just when the hero was almost fainting from fatigue and weakness the radio suddenly stopped playing music and switched to a commercial.

"Do *you* feel run down?" the announcer suggested. "Are you

tired? Do you drag through the day with no pep?"

I cut off the radio at that point to go back to the story and discover that the hero was run down and tired because high frequency radiation was draining the energy from his nerve synapses. The commercial seemed like an amusing coincidence at the moment. Now, I'm not sure but what I should have put things together. Maybe a first-class soothsayer could have established the radio-propagated words plus the story as a true omen.

Back in those days there was no true television or FM radio. Radar was being used, but only for military business, and not very strongly at that. We had practically no true high frequency or ultra-short-wave broadcasting. Today, the air is literally full of radio wavelengths that go down to as short as a few inches. Thousands of kilowatts of such stuff are pumped out in New York City alone. And, coincidentally or otherwise, the world is beginning to take on a pattern like that toward the end of Heinlein's story as far as human energy levels are concerned.

We're probably the best-fed nation in the world, except for a few sections. Yet the Army and Marines are gravely concerned because more and more of the youth from our healthiest sec-

tions fail miserably in their physical tests. It isn't that the tests are tougher, either. The Services have to lower their standards in order to make up their quota. It has become nearly impossible to obtain candidates for jobs that require a high degree of physical and mental coordination. This is a serious and indisputable fact, not subject to the mere prejudice of an older generation. Accounts from the Civil War tell of battle-fatigued, ill-fed men making forced marches of 40 miles with clumsy, heavy packs on their backs. Accounts of our current soldiers tell of men who collapse at 20 miles with far better equipment and conditioning.

#### MORAL WEAKNESSES

It isn't usually considered patriotic to mention it (though the Services have made no secret of it), but a lot of our modern men seem to lack "moral" strength, as well. Account after account tells of men who are captured and simply give up, making no attempt to escape or even to maintain the faintest vestige of morale. Brainwashing is often totally unnecessary. Battle fatigue became more dangerous to our forces during the Korean War than enemy action, though men were neither driven as hard nor were the risks of casualties as high as during other wars we have fought.

We can all see signs of a slackening of energy all around us, for ~~that~~ matter. Men come home from a hard day at the office or factory so tired that their faces are literally pallid, their nerves ready to snap. These men put in no more than an eight-hour day, with frequent rest breaks, and they have at least two full days of rest a week. Yet they are far more exhausted in every way than any similar group would have been under the older, far more rigid forty-eight hour week, or the fifty-four hour week that preceded that.

Twenty-five years ago, a great many countermen worked seventy hours a week—ten hours a day, every day. It wasn't easy work behind a busy restaurant counter, and there were never quite enough countermen for the number of customers. Today, a counterman spends only two-thirds as much time at work; he has more help from labor-saving methods; and he serves fewer customers in the same time, since more employees are demanded by the unions. Yet the pre-war worker normally was full of life an hour after he quit while today's man complains that he's still dead tired when he goes to bed each night.

It's true that men are doing remarkable physical things today. There have been new records for the high-jump, and the four-min-



ute mile has been beaten several times in the last few years, though it had always seemed impossible. But these are brief bursts of energy. Fifty years ago, endurance was more important. Men even bragged that they could outrun a horse over a hundred-mile course—and did it! No one even thinks to try now.

Women suffer as much as the men. Not one woman in fifty could handle the hard physical labor which was so much a part of grandma's life, even if she could nerve herself to try. I'd like to see the modern town from which the women could carry their men on their backs, as the women of Holland did during the Spanish siege.

Employers have always complained of their help, of course. But there's a new note in the complaints. Most employers to whom I've talked haven't been angry about laziness or lack of experience. They are deeply worried because they literally cannot find male or female help capable of sustained attention or the willingness to learn to work. Yet those employers admit their help finish the day in a state of genuine fatigue.

The use of liquor at lunch and after work has become almost a standard thing in America today. People complain that they can't even find the energy for eating until they have at least one or

two quick pick-me-ups. Dextro-drine is in common use to give energy enough to finish the day, while barbiturates have become almost synonymous with relaxation for sleep.

#### IS 'TENSION' AN ALIBI?

Naturally, this has been widely noted and commented upon. But there's a convenient alibi for it all. "The tension of modern living is so strenuous it's a wonder modern man can survive at all. Not like the placid lives our forefathers led."

That's 100% bunk, as any good student of history should be able to tell. Don't talk about atomic doom to a man who lived through the Black Plague or the woman who saw Tamerlane conquer her village. The problems then were based on survival, not on "security", and the chances were a lot worse.

Yet there *are* tensions on every hand. Outwardly, life today is far more secure and serene than it ever was. But inwardly, some form of stress seems to be increasing.

Myesthenia—like an extreme form of neuresthenia, or "nervous" debilitation—is increasing. More and more of the population show severe signs of "normal" neuresthenia. Meprobamate and other tranquilizers have become a major business.

This could also be a source of the alarming increase in juvenile crime. A healthy, energetic teenager is almost certainly going to show some delinquency, in the old meaning. He'll have to vent his animal energy in pranks, in devilishness, and in a certain careless destructiveness. But he will not be sullen, morose or usually have any desire for the ugly types of crime now so common. Such conduct on the part of a young man or girl is pathological. The descriptions of the youthful offenders are always of sullen, morose, defiant, and resentful boys and girls. And that is a good description of one reaction to neuresthenia. This is something that seems to have sprung up spontaneously in every country—Russia, England, Germany—where high technology would suggest the use of a great deal of high-frequency radio equipment.

For that matter, nations seem to have become neuresthenic in their reactions. The whole cold war is symptomatic of international neuresthenia. It has all the ugliness and psychopathic xenophobia of a hot war, but none of the physical release of energy.

This might well be the world Heinlein set up, where something was draining off man's normal energies. In his story, it hadn't had time for all the effects, but most of the symptoms would have shown themselves in time.

None of this *proves* that energy broadcast in the radio spectrum is the cause of the trouble, however. It would be no more than the poorest sort of science-fiction extrapolation to blame so many things on radiation unless there was some solid proof of the fact that such energy could cause the trouble. Very little work has been done on the subject of harmful effects of high frequency radio wavelengths, judging by the accounts in our daily papers. Even the scientific journals haven't devoted very much space to the matter. Most people and a great many scientists have taken it so much for granted that radio frequencies were harmless that little attention was given to any possible danger. Probably this was because the use of the longer wavelengths of normal radio AM broadcasting produced no noticeable harm and people were willing to leave well enough alone.

#### THE EVIDENCE

In the last few years, however, some evidence has been turning up, if one cares to watch for it. It took fifteen years after *Waldo* was published for the facts to appear, but they seem to show that Heinlein's guess was one of the really brilliant conjectures of science fiction, and indicate that it might be wise to consider all that he said.

Men who work near very powerful transmitters of certain wavelengths have long noted that heat is generated in their bodies from the radiation. At 150 megacycles, the wavelength is about six feet, and the human body would be the right size to tune in to the energy and to resonate with it. This fact has been used medically by doctors who needed to induce fevers in their patients and by men in cold climates who literally warmed themselves near the transmitters.

It shows that there can be a physiological effect from such radiation, but that doesn't suggest too much danger. After all, a steam radiator in the living room can produce some of the same effects. The steam radiator heats the outside of the body first, while the radio energy seems to heat the inner organs, but the effect is seemingly only that of heat. This effect was noted, cautions against overuse were issued, and it was pigeonholed as interesting but not important.

Workers around transmitters told stories of pigeons that seemed to go crazy. The birds would fly around the transmitter antenna, apparently somehow confused and unable to break away. Sometimes the birds would fly for a time and then drop to the ground, dead. A few scientists speculated on whether the radiation had distorted the

homing orientation of the pigeons.

Finally, a few years ago, tentative tests were made. Monkeys were placed near a source of radiation and careful checks were kept on their temperatures. They developed a fever, of course, but this was not permitted to become high enough or to last long enough to be fatal. Nevertheless, some of the monkeys died. There was evidence of nerve damage. There was some speculation that this was more than could have been expected from internal heating, but the results were not conclusive.

Finally, a piece of highly significant research was undertaken. Living cells, such as yeast and bacteria, were studied in the presence of high-frequency radiation. And the published results should have been considered important enough to worry the most optimistic. The cell behavior was greatly changed by the radiation. Reproduction apparently became difficult, with the splitting of the cells altered. Some processes were speeded up, while others were arrested. This time it was not because of heat. The cultures were kept at a normal temperature, and the results were not those that would have been expected from temperature effects. Here was proof that at least some forms of life could be seriously affected by

the supposedly harmless radiation.

### CELLULAR CHANGES

Further studies with certain chemicals showed other odd results. Many organic molecules might be said to have "unlike ends"; that is, an atom (or group of atoms) will either attach itself or break away easily from one spot on the molecule, but not from other places. In normal solution, such molecules scatter at random, and normal reactions proceed on this basis. But when subjected to high-frequency radiation, the reactions or the reaction speeds changed. It was as if the radiation somehow polarized the molecules, turning them all in one direction.

Human metabolism and existence depends on thousands of complicated chains of reactions, involving a great many enzymes which are frequently "single-ended", and the antibodies built up to counteract infections also behave as if one end were carefully mated to whatever they are fighting. This began to look like a very serious business, well worth careful investigation.

Apparently, a number of cautious scientists have come to the same conclusion.

This August there was a meeting at New York University Medical Center of a group of

such scientists. This meeting was the Fourth Annual Tri-Service Microwave Conference, and a number of reports were given on research begun in 1957.

One of the reports told of the first evidence that radiation of this sort could produce a definite change within the human body!

Gamma globulin, one of the factors in the blood which fights infection, underwent a "profound change" in the presence of radiation of certain wavelengths in the VHF (very high frequency) region, where some television channels are located. Significantly, the changes were affected by the frequency far more than the power of the radiation. Such changed gamma globulin, happily, seemed to work much better in defending the body than the normal variety.

Another report covered work done on dogs. When subjected to strong radiation from the radio spectrum first, it was found that the dogs could stand much higher dosage of X-rays without serious injury than untreated animals. The explanation of this seems a little uncertain, but might have something to do with the VHF waves "exercising the vascular system". This would indicate that radio waves can do a lot more than heat the innards of the dogs.

In both cases, the reports had happy results. The idea of radia-



tion that will increase our resistance to both disease and X-ray (or possibly radioactive) exposure should be highly welcome. At first glance, a study of such reports might make us all want to go out and find the largest transmitter we could, just to protect ourselves.

But the real significance isn't that the results were good; these were two developments out of an unguessable number that may turn up. The important thing here is that we finally have positive proof that high frequency radio waves can change vital chemicals within us and can also have an effect on our tissues not related to mere heating.

#### PROPHECY PROVEN

We have absolutely no idea of how many other changes and effects are currently being caused within us by the thousands of kilowatts of energy kicking around in our atmosphere. But we can at least begin to consider another science fiction prophecy as having been proved, at least in rough detail.

It is probable that it will be proved in far more than such rough form, however. Once we know there are effects, it shouldn't be too hard to make an estimate of the dangers. And here we begin to find Heinlein ahead of us again. In the story, the hero

found he was weakened because the radiation was raising hob with his normal nerve currents, draining off their energies. Certain unhappy facts about the nature of the VHF radiation and the structure of our nerves makes this seem entirely too possible.

The normal spectrum of all radiation begins with the dangerous cosmic, gamma and x-rays of extremely short wavelength and ultra-ultra-high frequency. (All radiation travels at about a billion feet a second, so a wave that undulates a million times a second—one megacycle—will go into that billion feet one thousand times—or have a wavelength of a thousand feet.) Below the dangerous radiation lies light, with heat below that. Finally we come to the radio frequencies, running from a few thousand megacycles to a hundred thousand cycles in normal use. This gives the stuff being radiated into our atmosphere wavelengths of from a few inches to thousands of feet.

Since we're normally opaque to light, it can't hurt us much, and we tend to think that anything lower in frequency will be even less harmful. But there's no reason for that idea. We have developed an opaque skin because we're normally exposed to light; our inner organs would develop a fatal sunburn in very little time if strong light came through to them. But the body never built

up a screen against radio frequencies. In fact, we're even more transparent to many of the VHF radiations, than we are to x-rays.

This would still be all right if the waves would simply slide through us. We're only affected by the energy that is trapped by our bodies. And there's where the nerves come into the affair.

### NERVE ANTENNAE

Nerve cells are microscopic, like all others, of course. But some of them are the longest cells in the body. Many nerves put out a long, incredibly thin *axon*, like a wire stretching out from a telephone, along which messages are sent. This axon may be several feet long.

It makes a regular little antenna to catch the energy of the radio waves. Any wave which is the same length or one which is four times as long can be neatly trapped; likewise, some of the energy can be picked up from wavelengths half as long as the nerve axon. We've done enough work with full and quarter wavelength antennae to know how well they work.

Since our nerve axons come in a great many lengths, it would seem that some nerves should be serving as pickups for almost any VHF wave that may come along.

The amount of energy in the

radiation varies with all sorts of conditions, of course. Twenty-five miles outside of New York City, I find that quite a few FM and TV signals produce several hundred microvolts of signal when picked up by a metal rod one quarter the length of the wave.

That may not sound like a great deal; a few hundred millionths of a volt couldn't possibly be felt. But the nerve itself operates with some kind of an electrical potential, and that is also measured in hundreds of microvolts or less.

So far as I know, nobody has attempted to measure how much signal can be picked up by using a nerve axon as an antenna. Probably it is less effective than a copper rod, but it is still designed as a conductor, with a sort of insulation around it. Furthermore, the human body as a whole can act as a sort of antenna; I've tried using myself as the only pickup for an FM set, and I've gotten a fair response where no sound was produced without my hand on the antenna connection.

This give us all we need to account for a possibility of almost universal nervous fatigue. Even allowing for poor efficiency, the axons of the nerves should pick up signals that are almost as great as those sent out from the brain, the spinal cord, or from

the sense organs. We never needed to worry about the problem until recently, so we don't have a built-in discriminator to separate the desired from the undesired signals, though they apparently don't fit our response pattern well enough to produce the results a normal biological signal would; they're probably pulsed wrong, since nerve signals normally seem to be pulse-modulated. But they should certainly be able to use up some of the energy the nerve normally builds up in the form of a precise voltage for message handling.

Instead of the normal cycle of a single pulse that laps across the synapse between two nerves, our friendly VHF signals may be producing the slow leakage through the synapses described in Heinlein's story.

Add to that the known fact that the radiation can act as an independent signal to "exercise" our blood vessels. Then couple in the pleasant prospect of radiation coming along that will change the very chemicals of our blood and almost certainly some of the other chemicals which exist in a delicate balance. For added comfort, we can consider the fact that there are already fears expressed that such radia-

tion may have serious effects on the lenses of our eyes. This is suggested by the scientists working on the problem and is given added weight by the fact that cataracts seem to be much more common than they once were.

The result is surely enough to account for the fact that children and adults today are acting in ways which have begun to worry the psychologists and the doctors. It's hardly any wonder that the world seems to be gradually weakening in a form of progressive neuresthenia far worse than Heinlein imagined.

There are some consolations, however. Your gamma globulin may be healthier than ever and your pet dog may be developing immunity to "hard" radiation. You needn't worry about turning the radio or TV set on; the little energy they pick up won't make any difference. If the radiation won't hurt you, surely the entertainment carried on it can't do you any serious harm.

As Longfellow prophesied, "the air shall be filled with music"—not to mention Westerns. If he was wrong about the cares that infest the day—well, the Arabs didn't exactly fold their tents and steal away quietly, so maybe his simile was ironic.

THE END

A Classic Reprint From

AMAZING STORIES, April, 1932

# *The Lost Machine*

By JOHN B. HARRIS

Introduction By Sam Moskowitz

*NEW approaches in science fiction are rare at any time and this was true even in the early years of the science fiction magazines. The venerable 81-year-old editor of AMAZING STORIES in 1932, T. O'Connor Sloane, Ph.D., was not too old to spot the uniqueness of The Lost Machine, a short story submitted by British author John Beynon Harris, who is far better known today as John Wyndham. In an advance announcement he blurbed: ". . . this story . . . is different in the field of scientific fiction. The human reaction to the thinking machine (of the future) has been depicted, but now we have the other side—the machine's*

*thoughts and reactions—or shall we say, reflexes?—to human endeavor."*

*This was only Harris' second story, but it was to bring about a revolution in the thinking of science fiction writers on the subject of the relationship between man and machinery. Previously in science fiction, the highly-developed machines, particularly those of the "robot" type, were underscored as potential threats to man's supremacy. This trend reached its apex in Miles J. Breuer's frightening and plausible novel Paradise and Iron (AMAZING STORIES QUARTERLY, Summer, 1930), where thousands of specialized machines, directed by*



electronic brains, run every function of massive industrial complexes without any human aid.

The originality of Harris' approach was immediately obvious. His story was told from the viewpoint of an extraordinarily intelligent machine. The machine was a robot from Mars, who had lost his flesh-and-blood Martian companion in an inexplicable explosion of their space ship shortly after arrival on Earth. The hero of the story and the object of sympathy is the robot, stranded on a relatively primitive planet with no hope of return to his native world.

It was left to Eando Binder in his popular story of Adam Link, I, Robot (AMAZING STORIES), Jan., 1939), to transfer Harris' notion of a responsible, highly intelligent, reliable and loyal alien robot to a mechanical man built here on earth and thereby become the midwife at the birth of the entire modern field of robot stories.

Isaac Asimov established his early reputation by utilizing Binder's type of robot in his short stories and adding "The Laws of Robotics." Binder's concept of the mechanical man as a responsible, dependable unit together with Asimov's "Laws of

Robotics" largely superseded the Frankenstein monster notion concerning such mechanisms that had been standard previous to the publication of *The Lost Machine*.

What's in a name?

John Beynon Harris made an early reputation in American science fiction magazines. As John Beynon he scored an even greater one in Britain. But as John Wyndham he was to realize his well-known and most outstanding publication achievement through serialization of *The Day of the Triffids* in *COLLIER'S* in 1950. To crash so prominent a general-circulation magazine with a legitimate full-length science fiction novel was a feat unmatched by contemporary magazine writers until John Christopher duplicated it with *No Blade of Grass* featured in the *SATURDAY EVENING POST* during 1956.

Today, John Beynon Harris' (John Wyndham's) place as one of the leading practitioners of the art of science fiction is generally acknowledged as this veteran, still actively writing, moves towards the 30th anniversary of the day he altered the thinking of the science fiction world with his short classic, *The Lost Machine*.

"FATHER, here, quickly," Joan's voice called down the long corridor.

Dr. Falkner, who was writing, checked himself in mid-sentence at the sound of his daughter's urgency.

"Father," she called again.

"Coming," he shouted as he hastily levered himself out of his easy chair.

"This way," he added for the benefit of his two companions.

Joan was standing at the open door of the laboratory.

"It's gone," she said.

"What do you mean?" he inquired brusquely as he brushed past her into the room. "Run away?"

"No, not that," Joan's dark curls fell forward as her head shook. "Look there."

He followed the line of her pointing finger to the corner of the room.

A pool of liquid metal was seeping into a widening circle. In the middle there rose an elongated, silvery mound which seemed to melt and run even as he looked. Speechlessly he watched the central mass flow out into the surrounding fluid, pushing the edges gradually further and further across the floor.

Then the mound was gone—nothing lay before him but a shapeless spread of glittering silver, like a miniature lake of mercury.

For some moments the doctor seemed unable to speak. At length he recovered himself sufficiently to ask hoarsely:

"That—that was it?"

Joan nodded.

"It was recognizable when I first saw it," she said.

Angrily he turned upon her.

"How did it happen? Who did it?" he demanded.

"I don't know," the girl answered, her voice trembling a little as she spoke. "As soon as I got back to the house I came here just to see that it was all right. It wasn't in the usual corner and as I looked around I caught sight of it over here—melting. I shouted for you as soon as I realized what was happening."

One of the doctor's companions stepped from the background.

"This," he inquired, "is—was the machine you were telling us about?"

There was a touch of a sneer in his voice as he put the question and indicated the quivering liquid with the toe of one shoe.

"Yes," the doctor admitted slowly. "That was it."

"And, therefore, you can offer no proof of the talk you were handing out to us?" added the other man.

"We've got film records," Joan began tentatively. "They're pretty good . . ."

The second man brushed her words aside.

"Oh, yes?" he asked sarcastically. "I've seen pictures of New York as it's going to look in a couple of hundred years, but that don't mean that anyone went there to take 'em. There's a whole lot of things that can be done with movies," he insinuated.

Joan flushed, but kept silent. The doctor paid no attention. His brief flash of anger had subsided to leave him gazing sadly at the remains before him.

"Who can have done it?" he repeated half to himself.

His daughter hesitated for a moment before she suggested:

"An accident?——I wonder," murmured the doctor.

"No—no, not quite that," she amended. "I think it was—lonely," the last word came out with a defiant rush.

There was a pause.

"Well, can you beat that?" said one of the others at last. "Lonely—a lonely machine: that's a good one. And I suppose you're trying to feed us that it committed suicide, miss? Well, it wouldn't surprise me any; nothing would, after the story your father gave us."

He turned on his heel and added to his companion:

"Come on. I guess someone'll be turnin' this place into a sanitarium soon—we'd better not be here when it happens."

With a laugh the two went out leaving father and daughter to stare helplessly at the residue of a vanished machine.

At length Joan sighed and moved away. As she raised her eyes, she became aware of a pile of paper on the corner of a bench. She did not remember how it came to be there and crossed with idle curiosity to examine it.

The doctor was aroused from his reverie by the note of excitement in her voice.

"Look here, father;" she called sharply.

"What's that?" he asked, catching sight of the wad of sheets in her hand.

As he came closer he could see that the top one was covered with strange characters.

"What on earth. . . ?" he began.

Joan's voice was curt with his stupidity.

"Don't you see?" she cried. "It's written this for us."

The doctor brightened for a moment; then the expression of gloom returned to his face.

"But how can we. . . ?"

"The thing wasn't a fool—it must have learned enough of our language to put a key in somewhere to all this weird stuff, even if it couldn't write the whole thing in English. Look, this might be it, it looks even queerer than the rest."



Illustrated  
by MOREY

*"A second later there came a stunning explosion . . . when I looked up the vessel was nowhere to be seen . . . only a rain of metal parts dropping to earth all about me."*



Several weeks of hard work followed for Joan in her efforts to decipher the curious document, but she held on with painstaking labor until she was able to lay the complete text before her father. That evening he picked up the pile of typed sheets and read steadily, without interruption, to the end. . . .

### Arrival

AS WE slowed to the end of our journey, Banuff began to show signs of excitement.

"Look," he called to me. "The third planet, at last."

I crossed to stand beside him and together we gazed upon a stranger scene than any other fourth planet eyes have ever seen.

Though we were still high above the surface, there was plenty to cause us astonishment.

In place of our own homely red vegetation, we beheld a brilliant green. The whole land seemed to be covered with it. Anywhere and everywhere it clung and thrived as though it needed no water. On the fourth planet, which the third planet men call Mars, the vegetation grows only in or around the canals, but here we could not even see any canals. The only sign of irrigation was one bright streak of water in the distance, twisting senselessly over the countryside

—a symbolic warning of the incredible world we had reached.

Here and there our attention was attracted by outcroppings of various strange rocks amid all this green. Great masses of stone which sent up plumes of black smoke.

"The internal fires must be very near the surface of this world," Banuff said, looking doubtfully at the rising vapors.

"See in how many places the smoke breaks out. I should doubt whether it has been possible for animal life to evolve on such a planet. It is possible yet that the ground may be too hot for us—or rather for me."

There was a regret in his tone. The manner in which he voiced the last sentence stirred my sympathy. There are so many disadvantages in human construction which do not occur in us machines, and I knew that he was eager to obtain first hand knowledge of the third planet.

For a long time we gazed in silent speculation at this queer, green world. At last Banuff broke the silence.

"I think we'll risk a landing there, Zat," he said, indicating a smooth, open space.

"You don't think it might be liquid," I suggested, "it looks curiously level."

"No," he replied, "I fancy it's a kind of close vegetation. Anyway, we can risk it."

A touch on the lever sent the machine sinking rapidly towards a green rectangle, so regular as to suggest the work of sentient creatures. On one of its sides lay a large stone outcrop, riddled with holes and smoking from the top like the rest, while on the other three sides, thick vegetation rose high and swayed in the wind.

"An atmosphere which can cause such commotion must be very dense," commented Banuff.

"That rock is peculiarly regular," I said, "and the smoking points are evenly spaced. Do you suppose. . . ?

The slight jar of our landing interrupted me.

"Get ready, Zat," Banuff ordered.

I was ready. I opened the inner door and stepped into the air-lock. Banuff would have to remain inside until I could find out whether it was possible for him to adjust. Men may have more power of originality than we, and they do possess a greater degree of adaptability than any other form of life, but their limitations are, nevertheless, severe. It might require a deal of ponderous apparatus to enable Banuff to withstand the conditions, but for me, a machine, adaptation was simple.

The density of the atmosphere made no difference save slightly to slow my movements. The tem-

perature, within very wide limits, had no effect upon me.

"The gravity will be stronger," Banuff had warned me, "this is a much larger planet than ours."

It had been easy to prepare for that by the addition of a fourth pair of legs.

Now, as I walked out of the air-lock, I was glad of them, the pull of the planet was immense.

After a moment or so of minor adjustment, I passed around our machine to the window where Banuff stood, and held up the instruments for him to see. As he read the air pressure meter, the gravity indicator and the gas proportion scale, he shook his head. He might slowly adapt himself partway to the conditions, but an immediate venture was out of the question.

It had been agreed between us that in such an event I should perform the exploration and specimen collecting while he examined the neighborhood from the machine.

He waved his arm as a signal and, in response, I set off at a good pace for the surrounding green and brown growths. I looked back as I reached them to see our silvery craft floating slowly up into the air.

A second later, there came a stunning explosion; a wave of sound so strong in this thick atmosphere that it almost shattered my receiving diaphragm.

The cause of the disaster must always remain a mystery: I only know that when I looked up, the vessel was nowhere to be seen—only a rain of metal parts dropping to earth all about me.

Cries of alarm came from the large stone outcrop and simultaneously human figures appeared at the lowest of its many openings.

They began to run towards the wreck, but my speed was far greater than theirs. They can have made but half the distance while I completed it. As I flashed across, I could see them falter and stop with ludicrous expressions of dismay on their faces.

"Lord, did you see that?" cried one of them.

"What the devil was it?" called another.

"Looked like a coffin on legs," somebody said. "Moving some, too."

### Flight

BANUFF lay in a ring of scattered débris.

Gently I raised him on my fore-rods. A very little examination showed that it was useless to attempt any assistance: he was too badly broken. He managed to smile faintly at me and then slid into unconsciousness.

I was sorry. Though Banuff was not of my own kind, yet he was of my own world and on the

long trip I had grown to know him well. These humans are so fragile. Some little thing here or there breaks—they stop working and then, in a short time, they are decomposing. Had he been a machine, like myself, I could have mended him, replaced the broken parts and made him as good as new, but with these animal structures one is almost helpless.

I became aware, while I gazed at him, that the crowd of men and women had drawn closer and I began to suffer for the first time from what has been my most severe disability on the third planet—I could not communicate with them.

Their thoughts were understandable, for my sensitive plate was tuned to receive human mental waves, but I could not make myself understood. My language was unintelligible to them, and their minds, either from lack of development or some other cause, were unresponsive of my thought-radiations.

As they approached, huddled into a group, I made an astonishing discovery—they were afraid of me.

Men afraid of a machine.

It was incomprehensible. Why should they be afraid? Surely man and machine are natural complements: they assist one another. For a moment I thought I must have misread their minds—

it was possible that thoughts registered differently on this planet, but it was a possibility I soon dismissed.

There were only two reasons for this apprehension. The one, that they had never seen a machine or, the other, that third planet machines had pursued a line of development inimical to them.

I turned to show Banuff lying inert on my fore-rods. Then, slowly, so as not to alarm them, I approached. I laid him down softly on the ground near by and retired a short distance. Experience has taught me that men like their own broken forms to be dealt with by their own kind. Some stepped forward to examine him, the rest held their ground, their eyes fixed upon me.

Banuff's dark coloring appeared to excite them not a little. Their own skins were pallid from lack of ultra-violet rays in their dense atmosphere.

"Dead?" asked one.

"Quite dead," another one nodded. "Curious looking fellow," he continued. "Can't place him ethnologically at all. Just look at the frontal formation of the skull—very odd. And the size of his ears, too, huge: the whole head is abnormally large."

"Never mind him now," one of the group broke in, "he'll keep. That's the thing that puzzles me," he went on, looking in my

direction. "What the devil do you suppose it is?"

They all turned wondering faces towards me. I stood motionless and waited while they summed me up.

"About six feet long," ran the thought of one of them. "Two feet broad and two deep. White metal, might be—(his thought conveyed nothing to me). Four legs to a side, fixed about halfway up—joined rather like a crab's, so are the arm-like things in front: but all metal. Wonder what the array of instruments and lenses on this end are? Anyhow, whatever kind of power it uses, it seems to have run down now. . . ."

Hesitatingly he began to advance.

I tried a word of encouragement.

The whole group froze rigid.

"Did you hear that?" somebody whispered. "It—it spoke."

"Loud speaker," replied the one who had been making an inventory of me. Suddenly his expression brightened.

"I've got it," he cried. "Remote control—a telephony and television machine worked by remote control."

So these people did know something of machinery, after all. He was far wrong in his guess, but in my relief I took a step forward.

An explosion roared: some-



thing thudded on my body case and whirled away. I saw that one of the men was pointing a hollow rod at me and I knew that he was about to make another explosion.

The first had done no injury but another might crack one of my lenses.

I turned and made top speed for the high, green vegetation. Two or three more bursts roared behind, but nothing touched me. The weapon was very primitive and grossly inaccurate.

### Disappointment

FOR a day and a night I continued on among the hard stemmed growths.

For the first time since my making, I was completely out of touch with human control, and my existence seemed meaningless. The humans have a curious force they call ambition. It drives them, and, through them, it drives us. This force which keeps them active, we lack. Perhaps, in time, we machines will acquire it. Something of the kind—self-preservation which is allied to it—must have made me leave the man with the explosive tube and taken me into the strange country. But it was not enough to give me an objective. I seemed to go on because—well, because my machinery was constructed to go on.

On the way I made some odd discoveries.

Every now and then my path would be crossed by a band of hard matter, serving no useful purpose which I could then understand. Once, too, I found two unending rods of iron fixed horizontally to the ground and stretching away into the distance on either side. At first I thought they might be a method of guarding the land beyond, but they presented no obstacle.

Also, I found that the frequent outcroppings of stone were not natural, but laboriously constructed. Obviously this primitive race, with insufficient caves to hold its growing numbers, had been driven to construct artificial caves. The puzzling smoke arose from their method of heating these dwellings with naked fire—so wasteful a system of generating heat that no flame has been seen on the fourth planet, save in an accident, for thousands of years.

It was during the second day that I saw my first machine on this planet.

It stood at the side of one of the hard strips of land which had caused me so much wonder. The glitter of light upon its bright parts caught my lenses as I came through the bushes. My delight knew no bounds—at last I had found a being of my own kind. In my excitement I gave a

call to attract its attention.

There was a flurry of movement round the far side and a human figure raised its head to look at me.

I was able to tell that she was a woman despite the strange coverings that the third planet humans put upon themselves. She stared at me, her eyes widening in surprise while I could feel the shock in her mind. A spanner dropped from her hand and then, in a flash, she was into the machine, slamming the door behind her. There came a frantic whirring as she pressed a knob, but it produced no other result.

Slowly I continued to advance and as I came, the agitation in her mind increased. I had no wish to alarm her—it would have been more peaceful had her thought waves ceased to bombard me—but I was determined to know this machine.

As I drew clear of the bushes, I obtained a full view of the thing for the first time and disappointment hit me like a blow. The thing had wheels. Not just necessary parts of its internal arrangements, but wheels actually in contact with the ground. In a flash the explanation of all these hard streaks came to me. Unbelievable though it may seem, this thing could only follow a track specially built for it.

Later I found that this was more or less true of all third

planet land machines, but my first discouragement was painful. The primitive barbarity of the thing saddened me more than any discovery yet made.

Forlornly, and with little hope, I spoke to it.

There was no answer.

It stood there dumbly inert upon its foolish wheels as though it were a part of the ground itself.

Walking closer, I began to examine with growing disgust its crude internal arrangements. Incredibly, I found that its only means of propulsion was by a series of jerks from frequent explosions. Moreover, it was so ludicrously unorganized that both driving engine and brakes could be applied at the same time.

Sadly, as I gazed at the ponderous parts within, I began to feel that I was indeed alone. Until this encounter, my hope of discovering an intelligent machine had not really died. But now I knew that such a thing could not exist in the same world with this monster.

One of my fore-rods brushed against a part of it with a rasping sound and there came a startled cry of alarm from within. I looked up to the glass front where the woman's face peered affrightedly. Her mind was in such a state of confusion that it was difficult to know her wants clearly.

She hoped that I would go away—no, she wished the car would start and carry her away—she wondered whether I were an animal, whether I even really existed. In a jumble of emotions she was afraid and at the same time was angry with herself for being afraid. At last I managed to grasp that the machine was unable to run. I turned to find the trouble.

As I labored with the thing's horrible vitals, it became clear to me why men, such as I had met, showed fear of me. No wonder they feared machines when their own mechanisms were as inefficient and futile as this. What reliance or trust could they place in a machine so erratic—so helpless that it could not even temporarily repair itself? It was not under its own control and only partially under theirs. Third planet men's attitude became understandable—commendable—if all their machines were as uncertain as this.

The alarm in the woman's mind yielded to amazement as she leaned forward and watched me work. She seemed to think me unreal, a kind of hallucination:

"I must be dreaming," she told herself. "It's impossible; some kind of horrid nightmare. . . ."

There came a flash of panic at the thought of madness, but her mind soon rebalanced.

"I just don't understand it," she said firmly and then, as though that settled it, proceeded to wait with a growing calm.

At last I had finished. As I wiped the thing's coarse, but necessary oil from my fore-rods, I signalled her to push again on the black knob. The whirr this time was succeeded by a roar—never would I have believed that a machine could be so inefficient.

Through the pandemonium I received an impression of gratitude on my thought plate. Mingling traces of nervousness remained, but first stood gratitude.

Then she was gone. Down the hard strip I watched the disgusting machine dwindle away to a speck.

Then I turned back to the bushes and went slowly on my way. Sadly I thought of the far away, red fourth planet and knew that my fate was sealed. I could not build a means of return. I was lost—the only one of my kind upon this primitive world.

## The Beasts

THEY came upon me as I crossed one of the smooth, green spaces so frequent on this world.

My thought-cells were puzzling over my condition. On the fourth planet I had felt interest

or disinterest, inclination or the lack of it, but little more. Now I had discovered reactions in myself which, had they lain in a human being, I should have called emotions. I was, for instance, lonely: I wanted the company of my own kind. Moreover, I had begun to experience excitement or, more particularly, apathy.

An apathetic machine!

I was considering whether this state was a development from the instinct of self preservation, or whether it might not be due to the action of surrounding matter on my chemical cells, when I heard them coming.

First there was a drumming in my diaphragm, swelling gradually to a thunderous beat which shook the ground. Then I turned to see them charging down upon me.

Enormous beasts, extinct on my planet a million years, covered with hair and bearing spikes on their heads. Four-footed survivors of savagery battering across the land in unreasoning ferocity.

Only one course was possible since my escape was cut off by the windings of one of the imbecile-built canals. I folded my legs beneath me, crossed my fore-rods protectingly over my lenses and diaphragms, and waited.

They slowed as they drew close. Suspiciously they came up

to me and snuffled around. One of them gave a rap to my side with his spiked head, another pawed my case with a hoofed foot. I let them continue: they did not seem to offer any immediate danger. Such primitive animals, I thought, would be incapable of sustaining interest and soon move off elsewhere.

But they did not. Snuffling and rooting continued all around me. At last I determined to try an experimental waving of my fore-rods. The result was alarming. They plunged and milled around, made strange bellowing noises and stamped their hooves, but they did not go away. Neither did they attack, though they snorted and pawed the more energetically.

In the distance I heard a man's voice; his thought reached me faintly.

"What the 'ell's worritin' them dam cattle, Bill?" he called.

"Dunno," came the reply of another. "Let's go an' 'ave a look."

The beasts gave way at the approach of the man and I could hear some of them thudding slowly away, though I did not, as yet, care to risk uncovering my lenses.

The men's voices drew quite near.

"Strewth," said the first, "ow did that get 'ere, Bill?"

"Search me," answered the



other. "Wasn't 'ere 'arf an hour ago—that I'll swear. What is it, any'ow?"

"Anged if I know. "Ere, give us a 'and and we'll turn it over."

At this moment it seemed wise to make a movement; my balancers might be slow in adjusting to an inverted position.

There was a gasp, then:

"Bill," came an agitated whisper "did you see that rod there at the end? It moved, blessed if it didn't."

"Go on," scoffed the other. "Ow could a thing like that move? You'll be sayin' next that it . . ."

I unfolded my legs and turned to face them.

For a moment both stood rooted, horror on their faces, then, with one accord, they turned and fled towards a group of their buildings in the distance. I followed them slowly: it seemed as good a direction as any other.

The buildings, not all of stone, were arranged so as almost to enclose a square. As the men disappeared through an opening in one side, I could hear their voices raised in warning and others demanding the reason for their excitement. I turned the corner in time to face a gagging group of ten or twelve. Abruptly it broke as they ran to dark openings in search of safety. All, save one.

I halted and looked at this re-

maining one. He stared back, swaying a little as he stood, his eyes blinking in a vague uncertainty.

"What is it?" he exclaimed at last with a strange explosiveness, but as though talking to himself.

He was a sorely puzzled man. I found his mental processes difficult to follow. They were jumbled and erratic, hopping from this mind picture to that in uncontrolled jerks. But he was unafraid of me and I was glad of it. The first third planet man I had met who was not terror-ridden. Nevertheless, he seemed to doubt my reality.

"You fellowsh shee the shame s'I do?" he called deafeningly.

Muffled voices all around assured him that this was so.

"Thash all right, then," he observed with relief, and took a step forward.

I advanced slowly not to alarm him and we met in the middle of the yard. Laying a rough hand on my body-case he seemed to steady himself, then he patted me once or twice.

"Goo' ol' dog," he observed seriously. "Goo' ol' feller. Come 'long, then."

Looking over his shoulder to see that I followed and making strange whistling noises the while, he led the way to a building made of the hard, brown vegetable matter. At openings all about us scared faces watched

our progress with incredulous amazement.

He opened the door and waved an uncertain hand in the direction of a pile of dried stalks which lay within.

"Goo' ol' dog," he repeated. "Lie down. There'sh a goo' dog."

In spite of the fact that I, a machine, was being mistaken for a primitive animal, I obeyed the suggestion—after all, he, at least, was not afraid.

He had a little difficulty with the door fastening as he went out.

## The Circus

THERE followed one of those dark periods of quiet. The animal origin of human beings puts them under the disability of requiring frequent periods of recuperation and, since they cannot use the infra-red rays for sight, as we do, their rests take place at times when they are unable to see.

With the return of sunlight came a commotion outside the door. Expostulations were being levelled at one named Tom—he who had led me here the previous day.

"You ain't really goin' to let it out?" one voice was asking nervously.

"'Course I am. Why not?" Tom replied.

"The thing don't look right to

me. I wouldn't touch it," said another.

"Scared, that's what you are," Tom suggested.

"P'raps I am—and p'raps you'd 've been scared last night if you 'adn't been so far gone."

"Well, it didn't do nothin' to me when I'd had a few," argued Tom, "so why should it now?"

His words were confident enough, but I could feel a trepidation in his mind.

"It's your own funeral," said the other. "Don't say afterwards that I didn't warn you."

I could hear the rest of them retire to what they considered a safe distance. Tom approached, making a show of courage with his words.

"Of course I'm goin' to let it out. What's more, I'm takin' it to a place I know of—it ought to be worth a bit."

"You'll never. . . ."

"Oh, won't I?"

He rattled open the door and addressed me in a fierce voice which masked a threatening panic.

"Come on," he ordered, "out of it."

He almost turned to run as he saw me rise, but managed to master the impulse with an effort. Outwardly calm, he led the way to one of those machines which use the hard tracks, opened a rear door and pointed inside.

"In you get," he said.

I doubt if ever a man was more relieved and surprised than he, when I did so.

With a grain of triumph he turned around, gave a mocking sweep with his cap to the rest, and climbed into the front seat.

My last sight as we roared away was of a crowd of open mouthed men.

The sun was high when we reached our destination. The limitations of the machine were such that we had been delayed more than once to replenish fuel and water before we stopped, at last, in front of large gates set in a wooden fence.

Over the top could be seen the upper parts of pieces of white cloth tightly stretched over poles and decorated by further pieces of colored cloth flapping in the wind. I had by this time given up the attempt to guess the purposes of third planet constructions, such incredible things managed to exist on this primitive world that it was simpler to wait and find out.

From behind the fence a rhythmical braying noise persisted, then there came the sound of a man's voice shouting above the din:

"What do you want—main entrance is round the other side."

"Where's the boss?" called Tom. "I got something for him."

The doors opened for us.

"Over there in his office," said the man, jerking a thumb over his shoulder.

As we approached I could see that the third planet mania for wheels had led them even to mount the "office" thus.

Tom entered and reappeared shortly, with another man.

"There it is," he said, pointing to me, "and there ain't another like it nowhere. The only all-metal animal in the world—how'd that look on the posters?"

The other regarded me with no enthusiasm in his eyes and a deal of disbelief in his mind.

"That long box thing?" he inquired.

"Sure, 'that box thing.' Here, you," he added to me, "get out of it."

Both retreated a step as I advanced, the new man looked apprehensively at my fore-rods.

"You're sure it's safe?" he asked nervously.

"Safe?" said Tom. "Course it's safe."

To prove it he came across and patted my case.

"I'm offering you the biggest noise in the show business. It's worth ten times what I'm asking for it—I tell you, there ain't another one in the world."

"Well, I ain't heard of another," admitted the showman grudgingly. "Where'd you get it?"

"Made it," said Tom blandly. "Spare time."

The man continued to regard me with little enthusiasm.

"Can it do anything?" he asked at last.

"Can it—?" began Tom indignantly. "Here you," he added, "fetch that lump of wood."

When I brought it, the other looked a trifle less doubtful.

"What's inside it?" he demanded.

"Secrets," said Tom shortly.

"Well, it's got to stop bein' a secrets."

pry into my machinery. The clumsiness of such as Tom was capable of damaging my arrangements seriously.

"Stop it," bawled Tom, behind me.

A man in my path landed a futile blow on my body case as I swept him aside. Before me was the biggest of all the cloth covered erections.

"Here," I thought, "there will be plenty of room to hide."



company him than to wander aimlessly.

## The Crash

SADLY, that night I gazed up at the red, fourth planet.

There rolled a world which I could understand, but here, all around me, was chaos, incredible, unreasoning madness.

With me, in the machine, sat three friends of Tom's whom he had picked up at the last town, and Tom himself who was steering the contraption. I shut my plate off from their thoughts and considered the day I had spent.

Once he was assured that we were free from pursuit, Tom had said to himself:

"Well, I guess that deserves a drink."

Then he stopped on a part of the hard strip which was bordered by a row of artificial caves.

Continually, as the day wore on, he led me past gaping crowds into places where every man held a glass of colored liquid. Strange liquids they were, although men do not value water on the third planet. And each time he proudly showed me to his friends in these places, he came to believe more firmly that he had created me.

Towards sunset something seemed to go seriously wrong with his machinery. He leaned heavily upon me for support and

his voice became as uncertain as his thoughts were jumbled.

"Anybody comin' my way?" he had inquired at last and at that invitation the other three men had joined us.

The machine seemed to have become as queer as the men. In the morning it had held a straight line, but now it swayed from side to side, sometimes as though it would leave the track. Each time it just avoided the edge, all four men would break off their continuous wailing sounds to laugh senselessly and loudly.

It was while I struggled to find some meaning in all this madness that the disaster occurred.

Another machine appeared ahead. Its lights showed its approach and ours must have been as plain. Then an astounding thing happened. Instead of avoiding one another as would two intelligent machines, the two lumbering masses charged blindly together. Truly this was an insane world.

There came a rending smash. Our machine toppled over on its side. The other left the hard strip, struck one of the growths at the side of the road and burst into naked flames.

None of the four men seemed more than a little dazed. As one of them scrambled free, he pointed to the blaze.

"Thash good bonfire," he said.

"Jolly good bonfire. Wonder if anybody'sh inshide?"

They all reeled over to examine the wreck while I, forgotten, waited for the next imbecility to occur on this nightmare world.

"It'sh a girl," said Tom's voice.

One of the others nodded solemnly.

"I think you're right," he agreed with difficult dignity.

After an interval, there came the girl's voice.

"But what shall I do? I'm miles from home."

"'S'all righ'," said Tom. "Quite all righ'. You come along with me. Nishe fellow I am."

I could read the intention behind his words—so could the girl.

There was the sound of a scuffle.

"No, you don't, my beauty. No runnin' away. Dangerous for li'l girlsh—'lone in the dark."

She started to scream, but a hand quickly stifled the sound.

I caught the upsurge of terror in her mind and at that moment I knew her.

The girl whose machine I had mended—who had been grateful.

In a flash I was amongst them. Three of the men started back in alarm, but not Tom. He was contemptuous of me because I had obeyed him. He lifted a heavy boot to send it crashing at my lens. Human movement is slow: before his leg had completed

the back swing, I had caught it and whirled him away. The rest started futilely to close in on me.

I picked the girl up in my fore-rods and raced away into the darkness out of their sight.

## Discouragement

AT FIRST she was bewildered and not a little frightened, though our first meeting must have shown that I intended no harm.

Gently I placed her on top of my case-work and, holding her there with my fore-rods, set off in the direction of her journey. She was hurt, blood was pouring down her right arm.

We made the best speed my eight legs could take us. I was afraid lest from lack of blood her mind might go blank and fail to direct me. At length it did. Her mental vibrations had been growing fainter and fainter until they ceased altogether. But she had been thinking ahead of us, picturing the way we should go, and I had read her mind.

At last, confronted by a closed door she had shown me, I pushed it down and held her out on my fore-rods to her father.

"Joan. . . ?" he said, and for the moment seemed unsurprised at me—the only third planet man who ever was. Not until he had dressed his daughter's wounds and roused her to consciousness

did he even look at me again.

There is little more. They have been kind, those two. They have tried to comprehend, though they cannot. He once removed a piece of my casing—I allowed him to do so, for he was intelligent—but he did not understand. I could feel him mentally trying to classify my structure among electrically operated devices—the highest form of power known to him, but still too primitive.

This whole world is too primitive. It does not even know the metal of which I am made. I am a freak . . . a curiosity outside comprehension.

These men long to know how I was built; I can read in their minds that they want to copy me. There is hope for them: some day, perhaps, they will have real machines of their own. . . . But not through my help will they build them, nothing of me shall go to making them.

. . . I know what it is to be an intelligent machine in a world of madness. . . .

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The doctor looked up as he turned the last page.

"And so," he said, "it dissolved itself with my acids."

He walked slowly over to the window and gazed up to Mars, swimming serenely among a myriad stars.

"I wonder," he murmured, "I wonder."

He handed the typewritten sheets back to his daughter.

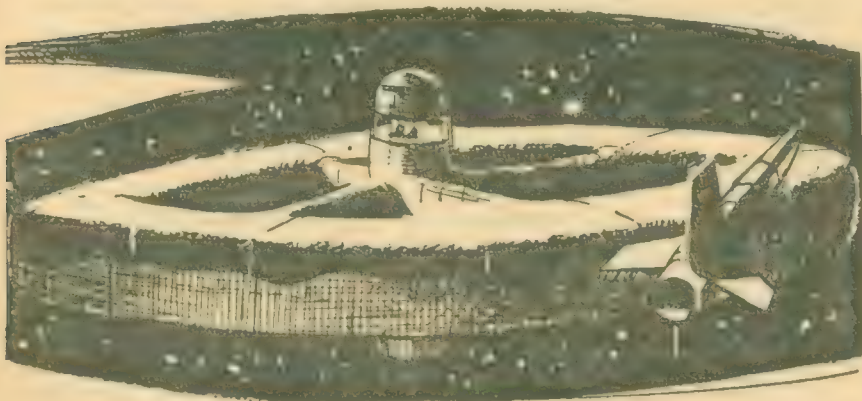
"Joan, my dear, I think it would be wisest to burn them. We have no desire to be certified."

Joan nodded.

"As you prefer, father," she agreed.

The papers curled, flared and blackened on the coals—but Joan kept a copy.

THE END



One can't be too cautious about the  
people one meets in Tangier. They're all  
weirdies of one kind or another.  
Me? Oh,

# *I'm A Stranger Here Myself*

By MACK REYNOLDS

THE Place de France is the town's hub. It marks the end of Boulevard Pasteur, the main drag of the westernized part of the city, and the beginning of Rue de la Liberté, which leads down to the Grand Socco and the medina. In a three minute walk from the Place de France you can go from an ultra-modern, California-like resort to the Baghdad of Harun-al-Rashid.

It's quite a town, Tangier.

King-size sidewalk cafes occupy three of the strategic corners on the Place de France. The Cafe de Paris serves the best draft beer in town, gets all the better custom, and has three

shoeshine boys attached to the establishment. You can sit of a sunny morning and read the Paris edition of the New York *Herald Tribune* while getting your shoes done up like mirrors for thirty Moroccan francs which comes to about five cents at current exchange.

You can sit there, after the paper's read, sip your expresso and watch the people go by.

Tangier is possibly the most cosmopolitan city in the world. In native costume you'll see Berber and Rif, Arab and Blue Man, and occasionally a Senegalese from further south. In European dress you'll see Japs



and Chinese, Hindus and Turks, Levantines and Filipinos, North Americans and South Americans, and, of course, even Europeans—from both sides of the Curtain.

In Tangier you'll find some of the world's poorest and some of the richest. The poorest will try to sell you anything from a shoeshine to their not very lily-white bodies, and the richest will avoid your eyes, afraid *you* might try to sell them something.

In spite of recent changes, the town still has its unique qualities. As a result of them the permanent population includes smugglers and blackmarketeers, fugitives from justice and international con men, espionage and counter-espionage agents, homosexuals, nymphomaniacs, alcoholics, drug addicts, displaced persons, ex-royalty, and subversives of every flavor. Local law limits the activities of few of these.

Like I said, it's quite a town.

I looked up from my *Herald Tribune* and said, "Hello, Paul. Anything new cooking?"

He sank into the chair opposite me and looked around for the waiter. The tables were all crowded and since mine was a face he recognized, he assumed he was welcome to intrude. It was more or less standard procedure

at the Cafe de Paris. It wasn't a place to go if you wanted to be alone.

Paul said, "How are you, Rupert? Haven't seen you for donkey's years."

The waiter came along and Paul ordered a glass of beer. Paul was an easy going, sallow faced little man. I vaguely remembered somebody saying he was from Liverpool and in exports.

"What's in the newspaper?" he said, distinterestedly.

"Pogo and Albert are going to fight a duel," I told him, "and Lil Abner is becoming a rock'n-roll singer."

He grunted.

"Oh," I said, "the intellectual type." I scanned the front page. "The Russkies have put up another manned satellite."

"They have, eh? How big?"

"Several times bigger than anything we Americans have."

The beer came and looked good, so I ordered a glass too.

Paul said, "What ever happened to those poxy flying saucers?"

"What flying saucers?"

A French girl went by with a poodle so finely clipped as to look as though it'd been shaven. The girl was in the latest from Paris. Every pore in place. We both looked after her.

"You know, what everybody was seeing a few years ago. Its

too bad one of these bloody manned satellites wasn't up then. Maybe they would've seen one."

"That's an idea," I said.

We didn't say anything else for awhile and I began to wonder if I could go back to my paper without rubbing him the wrong way. I didn't know Paul very well, but, for that matter, it's comparatively seldom you ever get to know anybody very well in Tangier. Largely, cards are played close to the chest.

My beer came and a plate of tapas for us both. Tapas at the Cafe de Paris are apt to be potato salad, a few anchovies, olives, and possibly some cheese. Free lunch, they used to call it in the States.

Just to say something, I said, "Where do you think they came from?" And when he looked blank, I added, "The Flying Saucers."

He grinned. "From Mars or Venus, or someplace."

"Ummmm," I said. "Too bad none of them ever crashed, or landed on the Yale football field and said *Take me to your cheerleader*, or something."

Paul yawned and said, "That was always the trouble with those crackpot blokes' explanations of them. If they were aliens from space, then why not show themselves?"

I ate one of the potato chips.

It'd been cooked in rancid olive oil.

I said, "Oh, there are various answers to that one. We could probably sit around here and think of two or three that made sense."

Paul was mildly interested. "Like what?"

"Well, hell, suppose for instance there's this big Galactic League of civilized planets. But it's restricted, see. You're not eligible for membership until you, well, say until you've developed space flight. Then you're invited into the club. Meanwhile, they send secret missions down from time to time to keep an eye on your progress."

Paul grinned at me. "I see you read the same poxy stuff I do."

A Moorish girl went by dressed in a neatly tailored gray jellaba, European style high-heeled shoes, and a pinkish silk veil so transparent that you could see she wore lipstick. Very provocative, dark eyes can be over a veil. We both looked after her.

I said, "Or, here's another one. Suppose you have a very advanced civilization on, say, Mars."

"Not Mars. No air, and too bloody dry to support life."

"Don't interrupt, please," I said with mock severity. "This is a very old civilization and as the planet began to loose its

water and air, it withdrew underground. Uses hydroponics and so forth, husbands its water and air. Isn't that what we'd do, in a few million years, if Earth lost its water and air?"

"I suppose so," he said. "Anyway, what about them?"

"Well, they observe how man is going through a scientific boom, an industrial boom, a population boom. A boom, period. Any day now he's going to have practical space ships. Meanwhile, he's also got the H-Bomb and the way he beats the drums on both sides of the Curtain, he's not against using it, if he could get away with it."

Paul said, "I got it. So they're scared and are keeping an eye on us. That's an old one. I've read that a dozen times, dished up different."

I shifted my shoulders. "Well, it's one possibility."

"I got a better one. How's this. There's this alien life form that's way ahead of us. Their civilization is so old that they don't have any records of when it began and how it was in the early days. They've gone beyond things like wars and depressions and revolutions, and greed for power or any of these things giving us a bad time here on Earth. They're all like scholars, get it? And some of them are pretty jolly well taken by Earth, especially the way we are right

now, with all the problems, get it? Things developing so fast we don't know where we're going or how we're going to get there."

I finished my beer and clapped my hands for Mouley. "How do you mean, *where we're going*?"

"Well, take half the countries in the world today. They're trying to industrialize, modernize, catch up with the advanced countries. Look at Egypt, and Israel, and India and China, and Yugoslavia and Brazil, and all the rest. Trying to drag themselves up to the level of the advanced countries, and all using different methods of doing it. But look at the so-called advanced countries. Up to their bottoms in problems. Juvenile delinquents, climbing crime and suicide rates, the loony-bins full of the balmy, unemployed, threat of war, spending all their money on armaments instead of things like schools. All the bloody mess of it. Why, a man from Mars would be fascinated, like."

Mouley came shuffling up in his babouche slippers and we both ordered another schooner of beer.

Paul said seriously, "You know, there's only one big snag in this sort of talk. I've sorted the whole thing out before, and you always come up against this brick wall. Where are they, these observers, or scholars, or spies

or whatever they are? Sooner or later we'd nab one of them. You know, Scotland Yard, or the F.B.I., or Russia's secret police, or the French Surete, or Interpol. This world is so deep in police, counter-espionage outfits and security agents that an alien would slip up in time, no matter how much he'd been trained. Sooner or later, he'd slip up, and they'd nab him."

I shook my head. "Not necessarily. The first time I ever considered this possibility, it seemed to me that such an alien would base himself in London or New York. Somewhere where he could use the libraries for research, get the daily newspapers and the magazines. Be right in the center of things. But now I don't think so. I think he'd be right here in Tangier."

"Why Tangier?"

"It's the one town in the world where anything goes. Nobody gives a damn about you or your affairs. For instance, I've **known** you a year or more now, and I haven't the slightest idea of how you make your living."

"That's right," Paul admitted. "In this town you seldom even ask a man where's he's from. He can be British, a White Russian, a Basque or a Sikh and nobody could care less. Where are *you* from, Rupert?"

"California," I told him.

"No, you're not," he grinned.

I was taken aback. "What do you mean?"

"I felt your mind probe back a few minutes ago when I was talking about Scotland Yard or the F.B.I. possibly flushing an alien. Telepathy is a sense not trained by the humanoids. If they had it, your job—and mine—would be considerably more difficult. Let's face it, in spite of these human bodies we're disguised in, neither of us is humanoid. Where are you really from, Rupert?"

"Aldebaran," I said. "How about you?"

"Deneb," he told me, shaking.

We had a laugh and ordered another beer.

"What're you doing here on Earth?" I asked him.

"Researching for one of our meat trusts. We're protein eaters. Humanoid flesh is considered quite a delicacy. How about you?"

"Scouting the place for thrill tourists. My job is to go around to these backward cultures and help stir up inter-tribal, or international, conflicts—all according to how advanced they are. Then our tourists come in—well shielded, of course—and get their kicks watching it."

Paul frowned. "That sort of practice could spoil an awful lot of good meat." **THE END**

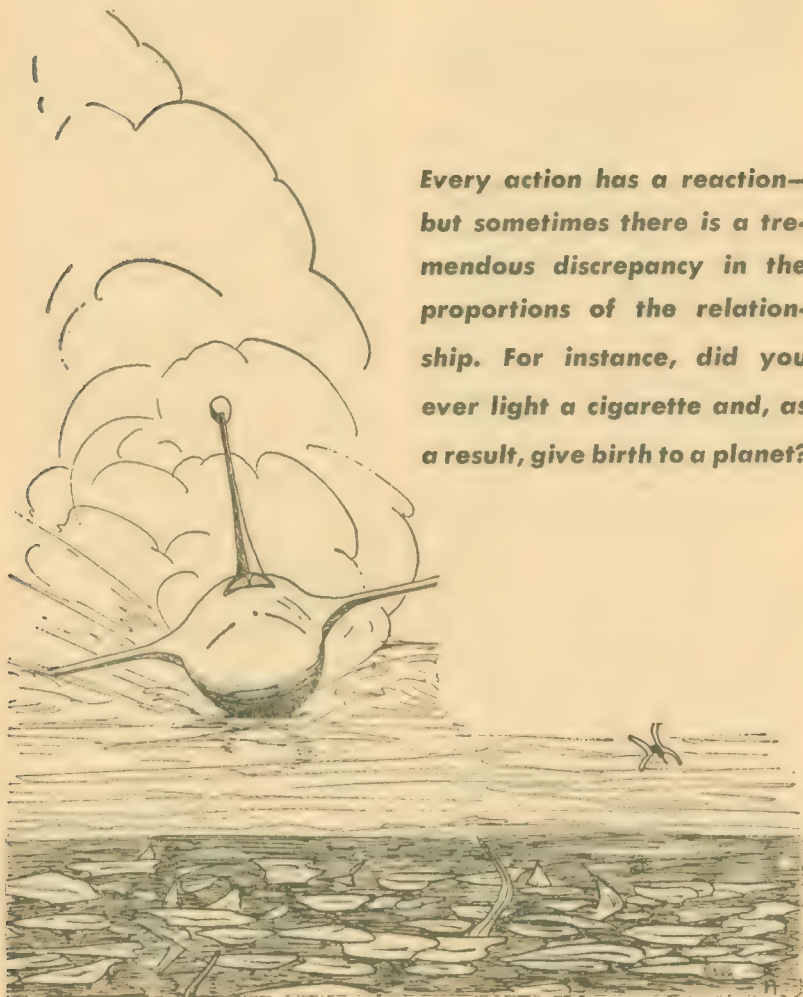


# *The Flames Of Life*

By THEODORE L. THOMAS

Illustrated by DOUGLAS

**Every action has a reaction—  
but sometimes there is a tremendous discrepancy in the proportions of the relationship. For instance, did you ever light a cigarette and, as a result, give birth to a planet?**



WHEN the alarm bell let go I knew just what Hank would do. Instead of diving for a pilot's seat like me and then looking for the trouble, he reads the board from where he is. Some day there'll be something go wrong and we'll need a man in a pilot's seat, quick, ready to fly that ship. I'll be there, and Hank'll be standing scratching himself looking at the board. You know how these big guys are.

Anyhow, that alarm bell started up, and I hit a seat and got strapped up and looked around. It was the liquid hydrogen pressure that was down, so there was no flying to do. I unstrapped and pushed across the cabin and went in through the small hatch and worked my way through the tubing and wiring and structural members until I came to the propellant tank. Hank was there, tightening up nuts on the pump. "Gasket," he said. "Must have let go since our last check-out. Wouldn't you think on a new ship like this they could find a lousy gasket that wouldn't blow?"

That was Hank all right; I expected him to talk like that, never thinking about the important things, such as—how much fuel we got left. I pulled myself forward to look at the tank gauge and Hank said, "About ten days' supply left, I make it.

What do you think is in there?"

I looked and did a little figuring in my head and told him, "About twelve days', I'd say. We got to find us a planet right now, and take on some more hydrogen."

We fixed the pump and went back to the cabin and got to work with the spectroscope. I fanned the nearby star clusters with the scope while Hank manned the UV eyepiece. It was two hours before we found a likely-looking sun. We figured its position and set up an intercept course. Hank broke to eat while I put the ship on its new course. Then there wasn't much to do for five days.

By that time we were close enough to begin checking out planets. In an hour we had one that showed the presence of water. I sat back, and Hank looked up and grinned at me, and we shook hands on it. Neither of us had said much about the spot we were in, because there wasn't much point. When you run out of fuel in deep space, talking doesn't help much; you got to do something.

Hank said, "Going to name it?"

Whenever a scout ship comes up with a new planet, the Chief has the right to name it. I said, "No, not now. We got work to do." First things first, I always say.

I pushed through some calculations, and we were not in as good shape as we had thought. We didn't have enough hydrogen to take us all the way to the planet; the last day and the landing would have to be dead-stick. You can see that this takes some nice navigation. We had to hit that planet and be captured by it in a fast-collapsing orbit, or we'd find ourselves starving to death in a perpetual orbit, or maybe we'd miss being captured at all, kind of bounce away.

I tell you, there are very few scout ships that have been navigated the way Hank and I navigated ours for the next five days; we did nothing but correct our bearing. We rode the verniers like they've never been ridden before. Every hour pulled us closer and allowed us to lay out a more accurate course. At the end of the fourth day we were dealing with microseconds of arc, and the last day we went even finer than that. For the final twenty-six minutes of fuel time we had a real problem. We used the bow braking rockets and it was hard to navigate that way, but we did it. Then we had a dead ship on our hands.

Hank acted just like I knew he would. "Okay," he said. "We've got eight hours until we reach the atmosphere. This'll give you seven hours' sleep. Let's go." I

didn't mind. It makes Hank feel pretty good to boss me around once in a while. I climbed into the sack and Hank did too, and both of us went to sleep right off. The buzzer woke us in seven hours.

Flying one of those space ships dead-stick in an atmosphere is like trying to fly a stone. I did the flying while Hank kept me filled with the information I needed. He called off air speed, air temperature, skin temperature, altitude, roll angle, pitch angle, along with the approximate degrees of longitude and latitude when we were in the dark half of the planet. Hank also took care of the trim of the ship. I had to do all the flying, so I couldn't look around much.

After about the sixth bounce off the top of the atmosphere, Hank said, "No clouds. Lots of water in the atmosphere, but no clouds."

I always pay attention to the immediate problem and don't worry about other things, so I didn't answer. We finally slowed enough so that we stayed in the atmosphere, and from then on things got hectic. I was busy killing speed by stalling and falling out, working my way down through the atmosphere. We got close enough finally so that I could see we were in some trouble. "Hey," I said to Hank.

"That's not solid land down there is it?"

"I beeped it," said Hank. "Most of it is swamp about a foot above sea level. Can you land on the water and let the ship slide up on the land?"

"Sure. You find the land and point her out to me."

Well, in another twenty minutes we had about run out of steam. Hank pointed ahead to the patch of brown he had picked. I banked and touched down a quarter of a mile away. Two great streams of water spouted up on each side of the ship as we skimmed along. Five hundred yards from the land the velocity was low enough that the lift was gone from the wings. The right wing dropped and touched the water and bounced up. This dropped the left wing to the water, and then it bounced up. The two wing tips slapped the water alternately and it sounded like a machine gun going off. Inside the ship Hank and I almost had our heads shaken off. It was rough. Neither one of us even felt it when the ship rode up on land. When it stopped we were too dazed to notice for a few minutes. I've had some bad shakings in my time, but never anything like that.

The first thing I did was pull some of the atmosphere into the

analyzer. I pushed the button, and the green light came on under the word "breathable."

"Hey," I said to Hank, "we won't have to wear our suits. Good breathable air out there."

"I don't know. Look here."

Hank was looking out the front ports, so I looked too. It looked greyish-black, and I couldn't understand it; we had landed in broad daylight. "Bugs," said Hank. "This place is alive with insects. We'd better wear our suits until we see what they are like."

"Just our luck," I said. "What did you notice about the planet? Any life?" I do all of the piloting, so I leave it to Hank to take care of all the things that aren't so important.

"Well," said Hank. "It's about twice the size of Earth, and it has a mass of about one and a half times that of Earth. Rotation—I don't know, but it must be very slow if it has any at all. Seems to be mostly swamp, no real dry land, no hills. We've got us a swamp planet here. But as long as it's got water so we can make our hydrogen, let's not worry about it. I didn't see any life except these swamp plants and the bugs."

I said, "Let's go outside and rig a water intake. We don't want to stay here any longer than we have to."

As we suited up, Hank said,



"That was one of the nicest jobs of piloting I've seen. Real sweet." And he poked me on the shoulder. That's one of the things I like about Hank. A lot of guys would be afraid to tell the Chief he did a good job—looks too much like he's buttering him up. Not Hank. He calls them the way he sees them, that boy.

We went out the lock, and the ground was soft and wet and spongy underfoot. I drove my heel in, and watched the hollow fill with water. Every time one of our footsteps disturbed the stiff vegetation, clouds of insects poured up around us. We moved a little bit away from the ship, and then stood still and looked around. After we'd stood awhile the bugs kind of thinned out. Without moving his feet, Hank flipped his helmet back and breathed the air. I did the same.

The air smelled wet and chill, and there was a faint touch of rottenness in it. As far as the eye could see there was the low-lying, wet flats, and the stretches of water. The vegetation was mostly a mixture of a wiregrass that looked like the marshgrass of Earth, and a thick-stemmed ground vine with large, almost square, red-bordered leaves. But the sky was the worst part of it.

There was no trace of clouds, there was no haze, no mistiness.

The usual blueness of the sky of an Earth-type planet was, missing. Instead the sky was colored a pale orange. The yellow sun burned coldly at a position corresponding to midmorn-ing on Earth.

"Funny place," said Hank. "Doesn't make sense. Why aren't there any clouds? We didn't see a sign of weather anywhere on the whole planet." He snapped his fingers. "That's it. This place doesn't have any weather. It rotates so slowly with respect to its sun that it has reached a steady state condition. Feel that gentle drift of wind?"

I turned my cheek to seek the wind, and I found it. I said, "I'll light a cigarette; that'll make a good wind indicator." I pulled a Star out of the pack in an inner pocket and put it in my mouth. The lighter was in a different pocket, and as I strained to reach it, I inadvertently moved my feet. Instantly there was a swarm of bugs around my head, and some of them began gouging hunks out of my skin. I slapped my helmet down. It chopped the cigarette right in half, but what was worse, there must have been a thousand bugs trapped inside the helmet with me. I couldn't get at them, I yanked the helmet up again so I could start swatting, and even more flew in. They

got in my eyes, my nose, my mouth, my ears, my hair, everything. It's funny how it works at a time like that. I suddenly realized that I was in trouble, very serious trouble with these bugs, yet I didn't panic. I was carefully beginning to figure a way out of the mess when I dimly heard Hank's voice above the buzzing of the bugs. "Hang on. I'm going to heat you up."

He banged my helmet shut, and I felt him fumble for my heat control. He must have turned it up full, because that suit got awful hot awful fast. The sweat broke out all over me. It got so hot I thought I would pass out, but I noticed that the bugs in the helmet were dropping to the bottom. I cut the heat back a little myself to where I could stand it, but the bugs couldn't. Soon they were all dead, and there I was with dead bugs in my helmet up to my chin. Hank said over the radio, "You all right?"

"Sure am," I said. "I'm right glad I had my N-gun with me to protect myself." I heard Hank chuckle. I always try to say something funny when things are tight—keeps Hank from getting too nervous and tied up, you know?

We walked back fast to the lock, staying ahead of the swarms of bugs that rose as we



walked. We closed the outer door, and I stripped off my suit inside the lock so the dead bugs would not get into the ship. I was glad to get them out of my helmet, I tell you. We dropped a handful in a bag and took them inside to see what they were like. Hank seemed to be concerned about any micro-organisms they might be carrying, but he needn't have worried. The microscope and the Kwik-Kulture showed nothing pathogenic to man.

I could see that the bugs were going to be a nuisance, so to Hank, "We've got a drum of jellied hydrocarbon in stores. I'll spray some around the ship to kill the bugs so we can work in peace; we'll burn them out."

Hank walked over to the port and looked out. I know Hank, and when he acts quiet like that, something is bothering him. I asked, "What's the matter?"

He shook his head. "I don't know. I've been thinking about this atmosphere. No clouds. It's strange. The thing that makes clouds form on Earth is seeding. The air is full of smoke and dust particles and tiny crystals of all kinds of salts, and these act as nuclei for the condensation of water vapor. Maybe there are no seeds in the air here, and that's why there are no clouds."

I rigged up a spray outfit with an igniter and a two-gallon con-

tainer of jelly. I pulled on my suit after going over it very carefully to make sure there were no dead bugs left in it. Just as I was getting ready to go out the lock I noticed Hank working with the analytical equipment. I was getting ready to ask him what was up, when he said over his shoulder, "I'm going to run a particle count on the air—see if there are any solids in it at all. I want to pull a sample before you light a fire."

"Good," I said, and I went out the lock. I was careful to keep my helmet in place as I walked around the ship checking to see how thick the vegetation was. At the rear of the ship I found the trench the ship had made as it slid in from the water onto the marshy land. The trench was full of water now; we had sort of brought the sea inland with us. I told Hank about it over the suit radio, and told him to get the hose ready to take in water for the hydrolysis operation. He said it was all set to go.

I walked around to one side of the ship, waited for the bugs to thin out, and then aimed the sprayer out ahead of me. My finger tightened on the igniter to put a spark across the nozzle, when I saw movement in the grass a hundred yards out. I looked at it directly, and couldn't see anything, but when I

looked above it I could see a ripple in the grass, a ripple that seemed to surround the entire ship and to flow slowly toward us. "Hank," I called. "Stand by. Something's happening out here. I can't make it out."

I could hear movement in the ship as Hank jumped to a port to look. His position was higher than mine, and he said, "Animals, or something, coming toward us through the grass. Better come inside until we know what they are."

I walked toward the lock, and then said, "I'll stay here a bit until I can see better. I have the N-gun and this flame thrower with me."

Hank grunted. "Funny. The insects aren't rising off the grasses. Wait a minute, they look like . . . my God, they look like people, small, black people crawling through the grass on their bellies. I'm coming out."

I loosened my N-gun in its holster, and made sure the flame thrower was ready to go. The circle grew closer and I could make out the black backs of the creatures. They came up to within fifteen yards of where I was standing, and then they stopped moving. Hank joined me, and we stood side by side. He said, "They're on the other side of the ship, too, so let's not let them get between us and the ship."

"Cover me," I said. "I'm going out to see what they look like." I stepped off carefully, peering through the clouds of bugs. When I got within five yards of the line of creatures, one of them stood up. What a surprise that was. The head was seal-like, with a loftier forehead and more prominent eye ridges. The body was vaguely human-like, but folds of skin connected the entire lengths of the arms and legs to the body. The front was almost hairless, and no sooner did the creature stand up than hordes of insects swarmed to its belly, attacking the grey skin, biting, digging, gouging, probing. The creature futilely rubbed its hands and arms constantly across its stomach in an effort to keep the bugs away, but the constant buzzing cloud grew thicker, and chewed at the hairless skin as soon as the arms passed over it. Finally with an air of dejection that was almost human the creature dropped down and pressed its belly into the ground, squirming to kill the insects that clung to it. Its black, back-hair seemed impervious to the bugs.

Hank came nearer from the rear. "Did you see that?" he said. "It acted like it wanted to stand up and talk, but the bugs wouldn't let it."

"That's what I thought. Do you suppose they're intelligent?"



As if it heard and understood, the creature took something from one of its companions, and reached out and placed it at our feet. We leaned forward to see what it was. It was a neat package of a greenish, fluffy substance that looked like a seaweed, a section of a white stalk, and a fish-like animal, all bound together with a dark green band. The creature obviously offered us food, and having made the offer, they all began to withdraw. I quickly picked up the package while the creatures could still see me. I waved and bowed to them, knowing that they might well not in any way understand what I was doing.

Hank pushed past me as the creatures retreated. He walked gently, and without haste, following them at a comfortable distance. He said, "They must live somewhere around here. They can't travel very far. Yes. They're all turning toward the water. Muskrats; I'll bet they live like muskrats in burrows in the banks." He was silent while he walked toward the water and down into it a way. "Yup. One of them is showing me how they go in and out. The burrows open just beneath the water—to keep the bugs out, I guess." He was silent while he looked around, then he came walking back to the ship in a thick, black cloud of insects. "Poor things," he

said. "They seem to know how bad off they are. The damn bugs own this planet. I wish there were something we could do to help them. Did you ever see a more miserable place to live?"

We looked around, and Hank was certainly right. Nothing but cold, harsh, insect-infested marshland, and calm water. And these creatures who gave us food. I shook my head and said, "I was just about to squeeze off this flame thrower when I saw them. That would have been a fine welcome. I might have killed them with it."

Hank said, "Well, we better start making hydrogen."

"Yes," I said. "I'll rig a hose to the track we made when we slid in here. You set up the hydrolysis unit. And we'd better check that gasket in the pump while we are at it." I always think it best to line up all the work right at the start. That way everybody knows what's going on, and there isn't much confusion.

We both went into the ship. While I was breaking out the hose, I heard Hank give a low whistle. I pulled the gun and jumped to him; when Hank is as surprised as that there is usually trouble. He was staring at the dial on one of the analytical instruments, and as I came up to him he said, "Less than one

part in a trillion. That's practically impossible."

"What is?" I said.

"Solids content of the atmosphere here. This place doesn't have any condensation nuclei in the atmosphere. That's why there's no clouds. The whole atmosphere is supersaturated, particularly in the higher regions. All it would need are some salt or smoke or dirt particles, and it would cloud up and rain, bet you. This whole atmosphere is unstable, just waiting for something to kick it off."

I thought about it, and didn't like it. "Wait a minute. The water down here is saline. That would be salt crystals in the air."

"Nope. No wind, no waves, no spray."

"Meteor dust. That would seed it."

"No meteors here, probably."

"Our entry might have. . . ."

I didn't finish, visualizing that dead-stick landing, slow and steady. Hank didn't say anything. I turned to finish with the hose and said, "Well, I guess we'd better watch ourselves with the atmosphere. I almost lit a cigarette out there. The smoke might have started a cloudburst. You ready for the water?"

"In a moment." Hank went to set up the hydrolysis unit.

In five minutes we were pumping water into the ship at the

rate of 50 gallons a minute. The unit broke it up into hydrogen and oxygen, liquified the hydrogen, and pumped it to the hydrogen storage tank. We took the fuel pump down and fitted it with a new gasket. While we were at it, we set the alarm to give us notice when thirty-day supply of fuel was left.

There wasn't much more to do, so we wandered outside the ship and down to the water's edge; it was nothing more than an area of greater sogginess. Some of the black creatures came out to greet us; at least it seemed that way. They gave the funniest impression of knowing exactly what was in our minds. Hank and I would wonder how



good they were at swimming: one of them would demonstrate his swimming prowess. We would wonder about their lung capacity: one of them would demonstrate that he could remain submerged for 30 minutes. They were air-breathers all right, but they certainly were at home in the water. They had to be, for every few minutes it was necessary to duck into the water to free the sensitive underbelly from insects.

The longer we lingered near the creatures the better we seemed to understand them. The understanding crept up upon us, unnoticed. When one of them made some waving motions with its arms, neither Hank nor I thought it at all strange that we knew what it meant. It wanted to be carried away from here, far away from this miserable place. "I don't blame it," said Hank. "If I had to live here I'd want to get out too." We both laughed at the way he put it. Besides I always like to laugh at Hank's little jokes. I figure it helps keep his morale up.

We went back to the ship, talking about the longing of the creatures to go someplace else. The trouble was, there *was* no place else on this planet; it was all water and swamp. At the lock Hank stopped and looked at the sky, and shook his head. "What a place. Like a powder keg.

Some dust or smoke in the air, and we'd probably have a whopping storm break out. I don't like it. Let's step up the electrolysis so we can get out of here."

I agreed. The place was getting on my nerves too. We did what had to be done to increase production of hydrogen, and then we sat around again, killing time, waiting for the hydrogen to accumulate. Hank got restless.

He had been staring out through a porthole. He muttered, more to himself than to me, "Never heard of an atmosphere like this, ready to bust out." He turned to me and said, "Did you ever run an analysis of this atmosphere?"

I shook my head. "Nope, not a detailed one. It was 'breathable' when I checked it, and that was good enough for me."

"Well, I think I'll run one, for the record." he turned and got busy. I wandered back to the unit to check things there. In another few hours we would be ready to leave this miserable swamp planet.

Back in the cabin, Hank was sitting staring at a slip of paper. He said, "Nothing very unusual. The atmosphere contains 76 percent oxygen, 17 percent nitrogen, and 7 percent methane. There's a lot of water

in it, too, but I wanted to see what it was on a dry basis. Nothing very interesting there."

"Where'd the methane come from?" I asked.

"I don't know. Out of the swamps maybe. Even on Earth you can find marsh gas, and . . ." Hank stopped talking, and a strange look came over his face. He glanced at the figures again, and shook his head, and began pulling on his lower lip. I can tell Hank is worried when he pulls on his lower lip. He got up and stepped over to the microfilm bank. I went with him; when Hank's worried, I'm worried. He pulled out the spool that carried Lange's Handbook of Chemistry, 49th Edition, looked in the index, and then at a table. When he turned to me his face had gone dead white. I'd never seen Hank so frightened.

I started to ask him what was the matter, but before I could open my mouth he pushed me toward the analyzer and said, "Run an analysis on the atmosphere, see what you get."

Well, I'm supposed to be in charge around here, but at a time like that I feel that it is a good thing to let Hank have his head. I cleared the analyzer and ran the analysis. I'm no chemist, but you don't have to be with that analyzer. I jotted down the figures and handed the

slip to Hank. He compared them and sat down and put his head in his hands. I was now seriously concerned. I said to him, "What is it?"

He said through his hands, "That atmosphere out there. It's explosive."

Somehow, I did not understand what he meant. I said, "What do you mean?"

"I mean that the atmosphere is made up of an explosive mixture of gases. You put a spark to that atmosphere and the whole place will blow up, the whole atmosphere is one big explosive mixture."

I'm a pretty quick thinker, and I saw right away what had him worried. I said, "Wow, I almost lit a cigarette out there. Then I almost burned off the marsh grass. Think how close I came to blowing us up."

Hank didn't say a thing. I said, "Don't worry. Nothing happened. We'll just be more careful in the future." I don't believe in worrying about things that are over and done, and I knew that Hank ought to feel that way too.

"Don't worry?" said Hank. "Okay? I won't worry if you will just tell me how we are going to blast off from this planet."

"Why," I said, "we will have plenty of hydrogen, so we just turn on the reactor and blast off like we . . . we blast off just



... the ship is just ... the flame . . ." And I saw what Hank meant. The ship's exhaust would light off the atmosphere, and that would be that. I sat down, hard. The more I thought about it, the worse it seemed.

Hank got up and stared out the porthole. "We picked a great place to fuel up. We probably could not find a more miserable, Earth-type planet if we scouted for the next hundred years. Now I know how those creatures out there really feel."

I couldn't even think. The idea of spending the rest of my life on this insect-ridden, swampy, hell-hole, was so deadening that I couldn't even think.

Hank said, "Well, there's got to be a way out. Let's see what we can come up with. Now, the thing is, we've got to keep the hot exhaust out of contact with the atmosphere. The ignition point of the atmosphere is about 1825 degrees C., so we can't let it get that hot."

Just hearing Hank talk, and watching him pace up and down the cramped cabin, made me forget my troubles. After all, Hank was sort of my responsibility; it's up to the Chief to lead the way in things like this. I began to think instead of worry, and right away I had the answer. "Build a shield," I said. "Let's extend the rear nozzle another fifty feet or so. That'll confine

the flames and keep the hot gases from . . ." I let my voice trail off. No welding, no brazing, not even a spark in that air. Besides, the hot gas travels a hundred yards astern, easily.

"That's the idea," Hank said. "Except the shield would have to be too long. Instead of a metal shield, maybe we could design a carbon dioxide shield—surround the flame with carbon dioxide, the way some welding flames are shielded."

I nodded, seemed like a good idea. We both fell quiet while we thought it out. Hank said, "With this steady wind blowing, it wouldn't take much of a slip in the gas shield to set off the planet. Don't you think it would have to be a pretty good shield before we could risk it?"

"I guess you're right. We couldn't be certain. No chance to check it out. Well, let's think of something else."

We thought. And we thought. We thought some more. Our hydrogen tank filled, so we disconnected our hydrolysis rig. We ate, and we slept, and we talked, but most of the time we thought. Three days went past and we were no nearer a solution than we had been at first. We covered sheets of paper with all kinds of schemes to keep heat, sparks, and fire away from the atmosphere while we blasted off, but none of them was any good. At

one point we quit trying to think of any more schemes to get off the planet; we simply relaxed; we went out and played with the black creatures and watched them beg us to take them someplace else. By gestures we succeeded in telling them that we were unable to move as yet. They understood, and brought us food. For some reason, that food turned me cold inside. It was finally borne in on me that I might really spend the rest of my life here after all. I had not really believed it before then. I went back into the ship.

Well, we had hoped that by putting our predicament out of our minds completely, a solution would burst on one of us. It didn't. I said to Hank, "Well, I've about had it. I can't think any more. Let's turn on the disaster beacon. There's one chance in a million that one of the other scouts will hear it and find us."

Hank looked at me strangely—I could tell—and said, "Tell me something. Suppose a scout did find us. Or suppose a transport found us. Or go all the way and suppose that we had the entire Earth technology in orbit around this planet—or even down here with us. With all that, how then could we get off without blowing us and the planet to kingdom come?"

I stared at him. I had never thought of that. You get in the

habit of thinking that so long as you are home, or home is near you, everything is all right. Here we were, and as far as I could see, all of Earth's technology could not get us out. It was then that I felt worse than I have ever felt. I was ready to light off the planet, destroy it and myself together. But that would not be fair to Hank.

I lost interest in the ship, and let Hank do the few things that had to be done in the line of maintenance. I sat at the port and stared at the insects and the swamp. At one point Hank grew very quiet. When I looked around I found that he was merely making a study of something or other in our film library. Later on I decided to go out and walk in the swamp. I don't know why; it was just something I had to do. When I suited up, Hank asked where I was going. I didn't see that I had to explain my movements to him, so I said nothing, turned my back on him. As I finished dressing, though, I noticed that Hank was dressed too. He went out the lock with me and walked alongside me as I went down to the water's edge, and beyond. I stood still until the swarm of insects thinned out, and then I tipped back my helmet. Hank did the same. I stared out over the water.

Hank said quietly, "You

know, a lot of people don't really know the difference between heat and temperature. Take an oven at 350 degrees F. You can thrust your hand right into it and not get burned. But you just thrust your hand into a pot of oil at 350 degrees F. and it will immediately cook the flesh right off your bones. There's a lot more heat in the oil; that's the difference."

I wasn't listening really. I was just staring dumbly out over the shallow water. Hank went on. "You take explosions now. Lots of people don't know what an explosion is. It is never anything more than a fast chemical reaction, one that releases heat and gases, sometimes fast, sometimes slow, on a comparative basis."

I still wasn't listening. Hank pulled out a pack of cigarettes, took one out, and put it in my mouth saying, "Have a cigarette."

I let it hang in my mouth, without thinking. Vaguely I noticed that Hank had his cigarette lighter in his hand. It wasn't until he extended it toward me and I saw his thumb tighten on the striking wheel that I realized what was going on. I started to yell, but Hank spun the wheel and a bright blue flame sprang up on the wick.

I saw the small bubble of light

blue fire start from the wick and begin to expand. Like a soap bubble it grew. It swept past my face and I felt the sear of it and I smelt the hairs on my face and head as they burned. I was afraid to move, and I stood motionless waiting for the blast that I was sure would come. The bubble of fire swept beyond me and the bigger it grew the slower it seemed to move. I could hardly see it; the light blue color was just about invisible in the light of the sun. I dared to move and look around me and I could see that Hank and I stood in the center of an ever-growing sphere of fire, but it moved so *slow*.

The sphere was no longer a sphere; the fire could not burn into the ground, so the sphere turned into a growing hemisphere. It looked like an inverted bowl of fire. Even as I waited for something to happen I felt good about what the fire was doing to the insects. The thin wings and legs and thin parts of the bodies of the insects flashed into smoke as the wall of fire touched them. Thick layers of smoldering insects fell to the ground, and the heat left in the wake of the fire charred them and dried them and made them burst into flame, even those in the shrubbery. The tips of the grass and the bushes smoldered, and here and there a momentary

burst of flame appeared in the swamp vegetation. It was hot, quite hot, but not nearly as hot as we thought it would be. I dropped my helmet and let the suit air conditioner take on the job of keeping me cool and comfortable.

In a minute's time the bowl of fire had only traveled 60 to 70 feet away from me, in all directions. A thin haze of smoke filled the bowl, and the wall of flame was just about impossible to see. Eddy currents began to appear at the edges of the bowl as the hot air inside began to surge upwards. The smooth, bowl shape began to disappear, and the smoke-filled interior began to heave and rise. Fresh atmosphere rushed in near the bottom and took fire. Isolated pockets of near-invisible flame began to grow out at the edges of the bowl of fire, and all symmetry disappeared. But the flames all moved so *slow*.

I pushed my helmet back. It was hot, but bearable. It was smoky, but breathable. I looked around at the slow-spreading jagged edges of the explosion wall, and I couldn't believe how quiet it was. The only sound was the sound of the wind as it pushed back and forth past my head. I heard a splashing sound behind me. I turned and saw one of the creatures standing upright. He raised his arms over

his head, and then dropped them and luxuriously scratched his belly. I knew what he meant: he was wallowing in the absence of insects. He dropped into the water to wet himself and then stood up again. All around him others were going through the same wonderful stretching and scratching.

At the end of 5 minutes it had cooled noticeably. The sheets of flame were a hundred yards off in all directions. I felt a few drops of warm rain fall. I looked up and could see small clouds forming and disappearing in the shifting air currents, and I heard Hank say, "I figure that it will take a little better than four hours to burn up to the top of the atmosphere. By that time we ought to have quite a storm here."

I said, "Did you know it would be like this?"

"I wasn't certain. I figured the air temperature would not be too high after the explosive wave passed; most of the heat would radiate to space, some would radiate to the water. And there'd be enough oxygen to breath when it was over. The velocity of propagation of the flame was the thing that set me up to light it off. I found out in the books that the flame velocity was only about one foot per second. We've got just about the slowest traveling explosive



wave front there is; you can walk faster than that. And let's walk now. I figure there may be some lightening storms around here before long. It'll be safer in the ship."

We went back to the ship. Little particles of soot floated around us as we walked, and it was pleasant to think that they had once been insects.

We checked out the ship for take-off and decided to get some sleep before we left; we both needed it right then and there. It was fifteen hours later when we woke. We checked a mile ahead of us through the rain and clouds to make certain none of the creatures were in our path, and then we blasted off. Take-off was normal.

We orbitted once outside the atmosphere, and I looked down as the ship passed over the night

side of the forsaken planet.

Great sheets of dim fire reached for hundreds of miles in all directions. Mighty clouds surged through the atmosphere, flickering and dancing from mile-long strokes of lightening that set off new fires. The sheets of fire assumed weird shapes, contorted, twisting, writhing. The planet looked like something alive, something in great and agonizing pain. It was a terrible sight, and I shuddered. But Hank must have known what I was thinking, because he shook his head and said, "No, it is a good thing. It is never easy to be born, but it is a good thing anyway." I didn't argue. I believe in letting my men say what they want.

It wasn't until later, reading the log, that I found that Hank had given the planet a name. He named it Phoenix.

#### THE END





# THE SPECTROSCOPE

By S. E. COTTS

**T**HE added space continues to be a boon. Because this has been another lively month, I need every word of it.

**Movies**—This is quite a time for Wernher von Braun. Not only does he have a book review later in this column, but his career is the subject of a film. Called *I Aim at the Stars*, the movie was selected from a list of 250 as the opener of the Edinburgh International Festival. It was produced by Columbia Pictures and features the German actor, Curt Jurgens, as Dr. von Braun.

**Reprint Department**—These classics are now available in paperback format:

**The Best from Fantasy and Science Fiction** (4th series). *Edited by Anthony Boucher.* 255 pp. *Ace Books:* 35¢.

**The Incomplete Enchanter.** *By L. Sprague de Camp and Fletcher Pratt.* 192 pp. *Pyramid Books.* (444 Madison Ave., N.Y., N.Y.) 35¢.

**Bodyguard And Four Other Short Novels From Galaxy.** *Edited by H. L. Gold.* 312 pp. *Doubleday & Company, Inc.* \$3.95.

With this latest collection from "Galaxy," I am struck again by the wide range of material which has become science fiction's domain. This versatility is all to the good, for it may help squelch those cynics who say that the rapid scientific advances today make S-F dated as fast as it is written. It is time such people learned that it takes more than new inventions to squelch imagination.

The first, "Bodyguard," by

Christopher Grimm has a good basic idea, a kind of galaxy-wide body chase. But the author seems to get carried away by the fever of this dangerous game of zorquill every bit as much as his characters. He thickens the plot to such a point that it would take a Van Vogt to clear it away. When Mr. Grimm learns to unravel with the same adeptness as he can weave, he'll be much more worth your time.

The "How-2" story by Simak presents the author in his accustomed lightweight prose. It is a delightful tale with the kindest of gibes at various tempting targets. The time is that marvelous ?? future when the do-it-yourself industry has reached its pinnacle with a put-it-together-yourself robot. What happens when one of these wonder kits reaches the wrong man gives Simak a field day.

"Delay in Transit" by F. L. Wallace brings out some of the hazards of space travel, but not those we are accustomed to hearing about. Mr. Wallace is not concerned with radiation belts or meteors. He writes of a day when the galaxy is so far-flung that it may take years and years to go out on a business trip to various worlds. Places on ships are at a premium and so are the personal papers necessary to get one of those places. The hero gets involved with a travel bu-

reau on an outworld only to find out its business is getting its clients' ID tags, so that they become stranded and someone from the bureau can leave instead.

Daniel Galouye, in "The City of Force," shares Clifford Simak's light touch. Aliens have taken over Earth and destroyed all the Earth cities. In their place, they have erected strange cities of force. Most Earthmen flee to the woods, but some discover how to live off the aliens, in the way an apartment house roach adjusts to the human inhabitants. Complacency sets in as the humans learn to manipulate the force material for their own pleasure. Then a young firebrand arrives in the city with plans to upset this easy life by driving out the aliens. Amusing chaos is the result.

Last is Frederik Pohl's "Whatever Counts," the story of a colonizing expedition which finally reaches its goal after seven years. Faced with an unexpected menace, the tensions that have been building between certain key members of the expedition flare into the open and focus on Brabant, the psychologist, who appears to have turned traitor. Pohl whips up a good deal of suspense in a short time. But after the surprise of the ending has worn off a little, the reader may have some grave

doubts about its plausibility.

**The Green Planet**—By J. Hunter Holly. 222 pp. Avalon Books. \$2.95.

After several months of drivel, Avalon has finally come (permanently, I hope) to its senses and given us a novel that is worth publishing. *The Green Planet* is a fast-paced adventure story. Thirteen persons are bound for Klorath. They are being sent there because they have been found to be subversives by the League, the ruling faction on Earth. To the thirteen, this exile means a chance to join with those previously exiled and make a new life, free from the restrictions of the League. But when they arrive they find only mystery and sudden death on the planet where they had counted on finding peace.

However, the excellence of the novel is deeper than skillful narrative. The extra dimension comes from the ideas that the plot gives the author a chance to examine—the qualities of leadership, the loneliness that accompanies responsibility, the disintegration of the democratic process under stress, the challenge to established religion found in an alien environment. These issues are not given a profound analysis. Indeed, sometimes the presentation is very naive. But the sincerity of the exposition is

most disarming and, therefore, quite convincing in the end.

**Nine Planets.** By Alan E. Nourse. Illustrated by Mel Hunter. 295 pp. Harper & Brothers. (49 E. 33rd St., N.Y., N.Y.) \$5.95.

By and large, I have enjoyed Alan Nourse's prolific output. He is not only a capable novelist, but also a short story writer of considerable merit whose works have been frequently anthologized. So it was with considerable pleasure that I sat down to read his new, large, non-fiction work, *Nine Planets*.

After finishing the book, however, my feelings about it are very mixed. It has certainly added to my respect for the author as a person. Alan Nourse is not an astronomer, but a doctor, and the amount of research involved in writing a book involving a completely different scientific discipline must have been staggering. But the author has not contented himself with just setting forth known or probable facts. In his introduction, he sets up very high goals which he says he will accomplish. He says he will set out the facts and reasonable probabilities and, with these as a framework, will speculate on what man will find in the course of his exploration of space. Finally, he will consider why the explorations are undertaken and what they will mean



to the human race. It is very difficult to get steamed up about the second and third goals, because Dr. Nourse gets so bogged down in the first. I have space for only one example, though I could give many more.

In the chapter on Venus he says, "The conclusion is difficult to avoid: there is water on Venus, and plenty of it." However, Nourse admits, prior to this statement, that astronomers disagree, that many feel Venus is a dry planet. So, although Nourse's logic is very clear and easy to follow, I cannot believe he has proved it is a wet planet. After all, he is a "Johnny-come-lately" to the field, and if proving there is water on Venus were as simple as he makes it, it is almost beyond belief that all the authorities would not have already come to this conclusion long before. This example is symptomatic of Nourse's general approach to his subject—an oversimplification of problems and complexities which gives the layman a clear picture of what the author is trying to say, but a distorted view of what may really be there.

Added to his tendency to oversimplify (and overdramatize, as when he says space exploration will make other famous feats seem like Boy Scout hikes) is a literary style that soon becomes a millstone around the reader's neck. His constant use of the

pronoun "we" to start every third or fourth sentence is first pedantic, and then irritating. It is hard to believe that this forced device comes from a man who has authored some tremendously exciting fiction. It almost completely negates his lovely descriptive passages.

I do not mean to discourage Mr. Nourse's new association with astronomy, but I think he has not applied all that he has learned to his own best advantage. Now that he has digested so much material from so many sources, and taken it for his own, he is in a position to use it as a framework not for further reasonable speculation, as he tried to do here, but for completely convincing, superior fiction, a medium where he can again be master of all he surveys.

**First Men To The Moon.** *By Wernher von Braun. Illustrated by Fred Freeman. 96 pp. Holt, Rinehart & Winston. (383 Madison Ave., N.Y., N.Y.) \$3.95.*

Though Dr. von Braun's book is aimed at younger readers (probably about age twelve and up), it is a good deal more successful in the parts that are geared to older readers. When the author's scientific knowledge is forced into the story of the first two men to go to the moon, the result is curiously dull and static. The young pilots be-

have more like experimental robots than people. But when Dr. von Braun sticks to science alone, all of his long experience in the rocket field makes the text alive with authority and interest. This fortunate dichotomy between story and science is made possible by an ingenious arrangement of the text. The story is set in large type with extreme-

ly wide margins. In these margins, in smaller type, is a veritable treasure trove of diagrams and scientific data. In addition, Fred Freeman's illos combine good draftsmanship with the scientific accuracy one would expect of the author's associate.

Portions of this book first appeared as a serial in "This Week" magazine.

### COMING NEXT MONTH

Our plans for making 1961 a happy new year for readers get off to a quick start in next month's January issue of **AMAZING**.



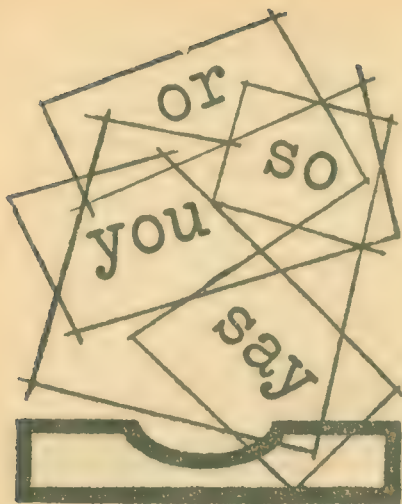
Item: **John Wyndham** adds to his spatial saga of the Troon family with a powerful story, *The Asteroids*, 2194.

Item: **Lester Del Rey** surveys the field of "universal" languages, introduces the newest one-world tongue, shows why it may be the best so far, and teaches you to speak a little of it in case you get stranded in the future. All of this in *Violets Are Blau* in 'Future' Talk.

Item: A novelet by the long-absent **Robert Silverberg** to accompany a striking cover (I.) by the equally long-absent **Ed Valigursky**.

Item: the second in our new series of reprints from the classic days of **AMAZING**. This one is a masterpiece by the famous **Dr. David H. Keller**, *Unto Us A Child Is Born*.

**Be sure to reserve your copy of the January AMAZING. It will be on your newsstand December 8.**



Dear Editor:

Before anything else a word of congratulation on your new layout as announced in *SF Times*. It really looks good and the improved story-policy certainly won't do any harm. Apparently after 25 years wasted existence *Amazing* is to come good again.

This letter was originally inspired by the letters concerning Ward Moore's "Transient." Initially agin (April) there was a general swing t'other way till now (August) those mentioning it are all for. It was attacked on two grounds: 1) indecency; 2) literary (a bit difficult to find but I managed to detect this in at least two letters).

Now most replies to these criticisms have been to the first claim. And I agree. There is

nothing really objectionable in "Transient." As a matter of fact I think there are more reasons for objecting to "T" than to Farmer's "Flesh," but that is outside your province.

Two people, (at least) have attributed literary value. Now even in the sf field I don't think that this is a valid claim. Moore has written much better ("The Fellow Who Married The Maxill Girl") himself and many other writers have done a lot better. The whole story was sloppily put together and the idea much overworked. I don't think even the most generous of literary critics could describe "Transient" as *beautiful* as did Hamlin, Greenman and . . er . . (?) . . Harrell. Perhaps these gentlemen should read some LITERATURE and then come back and read "Transient" again. Fight, anyone?

Incidentally Blish made a large boo-boo in the July *Amazing*. Anyone spot it?

John M. Foyster  
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Chadstone SE10  
Victoria, Australia

• *Literary value is a state of mind without much in the way of upper-level objective standards. You can get an argument over Dickens or Kerouac on the "literary" basis. But this Blish "boo-boo" is more interesting. Has anyone else found what it is?*

Dear Editor:

Having just completed reading the September issue of *Amazing*, I have a few comments.

Concerning Sam Moskowitz's articles, though the previous installments in past issues were fairly interesting, the present discussion concerning Hugo Gernsback was extremely engrossing. I strongly encourage both Ziff-Davis and Mr. Moskowitz to indefinitely continue these profiles, though I realize the amount of work which Mr. Moskowitz must put in to these articles. I feel it would be a great contribution to the readers of your magazines were the articles to continue featuring the lives of science fiction greats.

I have been reading *Amazing* for only four months now, but I count myself as a loyal fan.

Would you do not only myself, but many other readers a favor? In exactly what issues of *Amazing* did Ward Moore's "Transient" run? The reader column has gotten me intensely interested in this novel, and I am making the rounds of the used magazine stores in search of the two issues.

Anthony Ryan  
2024 Bristol Ave.  
Stockton, Calif.

• "Transient" ran in the February, 1960, complete in that issue.

Dear Editor:

I believe I said in my last letter that if you printed it I wouldn't bother you any more. That letter was written four issues ago, before I read "Omega" plus "... And All The Stars A Stage."

"Omega!" was everything readers have come to expect from Sheekley, and much, much more. Action, intricate plotting, interesting and well developed characters—all contributed to what is certainly the best novel you have printed since I began reading *Amazing* in 1958.

Sorry I can't say the same for Blish's novel, "... And All The Stars A Stage." Man what a bore! However "Omega!" more than made up for it. I hope you will keep printing Bob Bloch's stories, and maybe another novel from him. Please—story, nov-  
elet, or anything by Richard Matheson.

I'm anxious to see what the new *Amazing* is going to be like.

Michael Padgett  
3230 Washington Road  
Augusta, Georgia

• Bloch is making so much money from his movie, "Psycho," and Matheson is basking in a warm glow from the reviews on his new book, "The Beardless Warriors," that we hesitate to spoil their dreams by asking them to write anything like a li'l ol' science fiction story.



Dear Editor:

I don't know how you do it . . . six great novels in a nine month period. First came "Night of the Long Knives" (Jan.) then "Transient" (Feb.) "Seven From the Stars" (March) "Hunters Out Of Space" (May) "And All The Stars A Stage" (June-July) and now "Omega!". The conclusion was every bit as exciting as I thought it would be.

Next on the agenda: "When The Moon Was Red." As I said in the May *Amazing* letter department, I like Kate Wilhelm's stories. Let's have more.

Les Collins' "Trajectory To Taurus" was good, right up there with his past stories.

Sam Moskowitz's article on Gernsback was excellent.

In future issues, how about more stories by Murray Leinster. His "Long Ago, Far Away" was a fine novel.

One question: is Calvin M. Knox the pseudonym of Robert Silverberg. Their writing seems almost identical in style.

David Paskow  
817 W. 66th Avenue  
Philadelphia 26, Pa.

• *Good eye, Dave! You win this month's pseudonym award. Knox and Silverberg are one and the same.*

Dear Editor:

For years I have read every-

thing. Your September *Amazing* shows very complicated trends and might cause me to stop reading everything and become more selective. "When The Moon Was Red" is not science fiction, in my opinion. There is no extrapolation of today's science. A space ship is suggested and a superstitious reference is made to Robbie's possible pre-cognitive abilities in the last paragraph.

The profile of Hugo Gernsback was nifty. Let's have more of this sort of thing. I'd welcome profiles on more of our great editors and writers in the science fiction field.

"Trajectory to Taurus" is so nicely written I hate to say that I resented the premise on which it was developed. What science fiction fan wants to read about planets that have unexplained abilities to talk via brain-waves with human beings? This veil of ignorant mystification and suggested Wonders, supposedly inexplicable to human beings, could be valid if it were draped over futuristic sculptures of Beauty as we know it. What's beautiful or stirring about survival of the fittest amongst planets? The idea doesn't even give intellectual satisfaction.

Robert Sheckley is a solid writer of satisfying stories. "Omega!" seems to satisfy my aging requirements for science

fiction, except that the theme might be sustained too long and belabored too much. Sheckley impresses me tremendously with his prolific output and intriguing range of subjects. More of his stuff, please!

I am delighted to give my whole-hearted support to your Editorial Policy. I like the idea of bringing readers closer to the magazine. Please keep drivel out of the letter column. The tone of your editorial comments on letters is pleasantly light. Let's keep our sense of humor and OUT with pretentious sententiousness. This means I don't favor science fact articles. Them I can get elsewhere. Besides, they are incongruous when bound between the same covers as some of your recent non-science stories.

Walter M. Sharrock  
517 Lake Avenue  
Asbury Park, N. J.

• *Not only do you read everything, you comment on everything. But may we ask what's so beautiful about survival of the fittest among animals, or men? Not very intellectually satisfying, either?*

Dear Editor:

I have been a follower of science fiction for a number of years and I want to say also that I especially like your policy of giving the young writers a chance.

Among the newer writers it seems to me Bunch has something to say. In fact, I'm rather fascinated by these new-metal people and their almost constant state of letting go with launchers. How unlike people, don't you think, and aren't we glad people have more sense than to have that kind of fun?

F. A. LeBourdais  
Montreal, Canada

• *No comment, except to say, vive l'ironie!*

Dear Editor:

I would like to compliment you on your September, 1960 issue of *Amazing*. Only "Omega!" and "When The Moon Was Red" marred the finish.

Although "Omega!" was a pretty good adventure drama, it lacked the necessary suspense. For instance at the end of the first part Barrent fainted after wrestling with a machine whom he triumphed over. Now to me, that isn't the type of ending that would keep you anxiously waiting for the next issue. As a matter of fact, I forgot about it. However, it would probably satisfy anyone who wants pure adventure.

"When The Moon Was Red" was a very dull and familiar story about the boy genius versus his family, although in this case, it was only the boy's father. It started out pretty good, but

half way through I could fairly well guess the ending.

Now for some compliments. "Trajectory to Taurus" was an exciting story with an unusual ending that sets you to thinking. At least it did me. I hope you continue to put a humorous story in every issue. It shows that even editors are human, and have a sense of humor. Auto hawks such as those I would never dream of! Your profile of Hugo Gernsback was cleverly written although surprisingly long. I see you are also doing a profile series in *Fantastic*. Hope you don't run out of authors.

Donald C. Foote  
703 S. Perry St.  
Johnstown, N. Y.

• *We are glad to see you think editors are human, which puts you on our side, as opposed to people who think editors are not human—such as authors, agents, artists, publishers and production managers.*

Dear Editor:

I agree with Frederick Norwood in that I enjoyed reading "... And All the Stars a Stage" but when I finished I wondered if it was worth the effort. I didn't (and you didn't) notice any Anti-Semitism in "Noble Redman"; however, I wasn't looking for any. I forgot the main characters' names a few minutes after finishing the story and prob-

ably almost everyone else did also. I doubt if there was much harm done.

Charles G. Waugh  
3620 Lott Street  
Endwell, N. Y.

Dear Editor:

Reading some of the vitriolic responses of readers to certain of the stories in *Amazing* I wondered why their fury, was so extreme—until I spotted Kate Wilhelm's story, "When The Moon Was Red." I had to force myself through it after the first paragraph. Instinct from long experience warned me immediately I spotted a feminine by-line on the title page. I have never in all the years of reading science fiction found a woman author capable of writing a plausible story. Their basic gimmick is to launch off into a social phenomena dealing with one of a class of stories involving children, dogs, marriage, the home, etc. They pad their stories with a superficial sprinkling of scientific terms gleaned from the New World Encyclopedia, and they call it a science fiction story. Specifically (a) An almost complete method of grinding a telescope mirror is lifted bodily from "How to build a telescope" (b) a trite family quarrel comprises the conflict. To most of us who see this every day, the hostility of the sexes is not news nor is it entertaining.

Here is a woman tenderly con-

cerned over the interference in a boy's freedom, who can say to herself, of her husband, "I'll kill him before I let him take Robbie away." Gentle—black widow.

The husband is represented as a complete fool—a common delusion in the ranks of the new suffragette ideology. Television writers make the same mistake—for the most part.

There is a hint that the boy deliberately engineers his father into a premature death. Please! Spare us this sort of writing. It's distasteful because the author doesn't even bother to disguise her aberrations. It's not science, it's Soap Opera.

For many years I read science fiction from a basic love of science. At this late date I come back to it with a specific purpose: to pick up an understanding of the field for my own writing. Its breathtaking to view the imagination and literary skill of some writers. I can regard their results with awe because I know the ordeal of research and writing and rewriting.

I'm aware that there is not enough high caliber writing to fill a magazine month after month with only the best. I know new writers should be encouraged. But writing of the caliber of "When The Moon Was Red" is unforgivable. I hope that if you ever see any of my manuscripts that you won't ever do me

the disservice of accepting a sloppy performance merely because good writing is rare. Perhaps this is why I continually see the same authors month after month in the six science fiction magazines which dominate the field.

If my remarks seem extreme regarding female authors—who should point their material at the *Ladies Home Journal*, I challenge you to find one of the caliber of your best writers.

Carl A. Clemente  
415 E. 5th St., Apt. 4  
Tucson, Arizona

• *You may have just set off a new civil war. We try not to think of authors as "men" or "women", but as writers. I imagine Miss Wilhelm could do just as devastating a job on a female if she put her mind to it. What you are saying, if we understand aright, is that woman's subconscious hatred of man was her motivation for doing the piece. And your motivation for writing your letter? It would be interesting to hear what Miss Wilhelm, and other fans, have to say about this?*

Dear Editor:

The article, "Homesteads On Venus," by Lester del Rey, in October *Amazing*, is listed as a FACT article. The subheading states that Venus is going to waste, and that here is a blow-



by-blow plan of how we can start now to make Venus fit for human habitation.

"Blow-by-blow"—like a fighter out to conquer.

First, I would say that science as a whole does not have the true facts about Venus, and it naturally follows that Mr. del Rey doesn't either.

Aside from this, witness the stupendous nerve of the man, the egoism displayed, when he sets aside all thought of what the inhabitants of Venus might think in contemplating an invasion of their world by Earthmen for the purpose of colonizing. Such presumption and reckless disregard for the rights of others might be expected from Russia today or from Communist China, but I was of the opinion that the United States is trying to make some advancement from savagery to a higher state of civilization. In the article the idea expressed is to go there and take over just as though the universe is our oyster and belongs solely to us.

I wish to take exception to such ideas. They constitute invasion, theft, and no doubt the use of armed force in carrying them out. They are the marks of savages. Of course I realize the stories in *Amazing* are those that deal with savagery and cruelty. They are adventure, and seem to fill a need for us, due to some of

the past history of the human race. However, fiction and fact are two different things.

Actually, it is my belief that Earthman as now physically constructed could not find a landing place on the planet, and hence not being able to land, even if permitted, he could not colonize. In short, it is highly improbable that a space ship built by man in his present state of learning could reach any of the planets. It might be possible to reach the moon, but it alone.

Does this author think man can roam the universe and do as he will on the various planets? He is apt to be sent home with his tail between his legs. The interplanetary confederacy no doubt knows how to deal with upstarts. He should lay off Mars, also, if he knows what is good for him.

If we go visiting let us go in a friendly and courteous manner, and it is possible we may be received courteously.

Man shall not reach the planets in his third dimension condition.

H. Conrad  
3514 Division St.  
Bremerton, Wash.

• *What Mr. del Rey meant, we are sure, is that we should colonize Venus under the aegis of the United Nations. Ok? Can we try for Mars now?*



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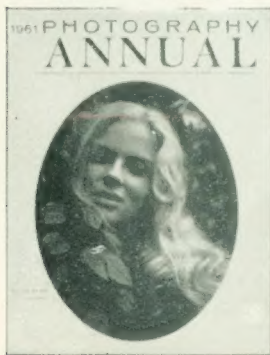
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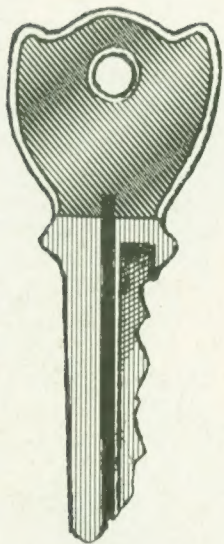


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